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PHYSICAL, CHEMICAL, AND BIOLOGICAL OBSERVATIONS IN THE EASTERN TROPICAL PACIFIC OCEAN: THREE CRUISES TO THE GULF OF TEHUANTEPEC, 1958-59

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Fish and Wildlife Service, Clarence F. Pautzke, Commissioner
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PHYSICAL, CHEMICAL, AND BIOLOGICAL OBSERVATIONS IN THE EASTERN TROPICAL PACIFIC OCEAN: THREE CRUISES TO THE GULF OF TEHUANTEPEC 1958-59

by Maurice Blackburn, Raymond C. Griffiths,
Robert W. Holmes, and William H. Thomas
University of California
Scripps Institution of Oceanography
La Jolla, California

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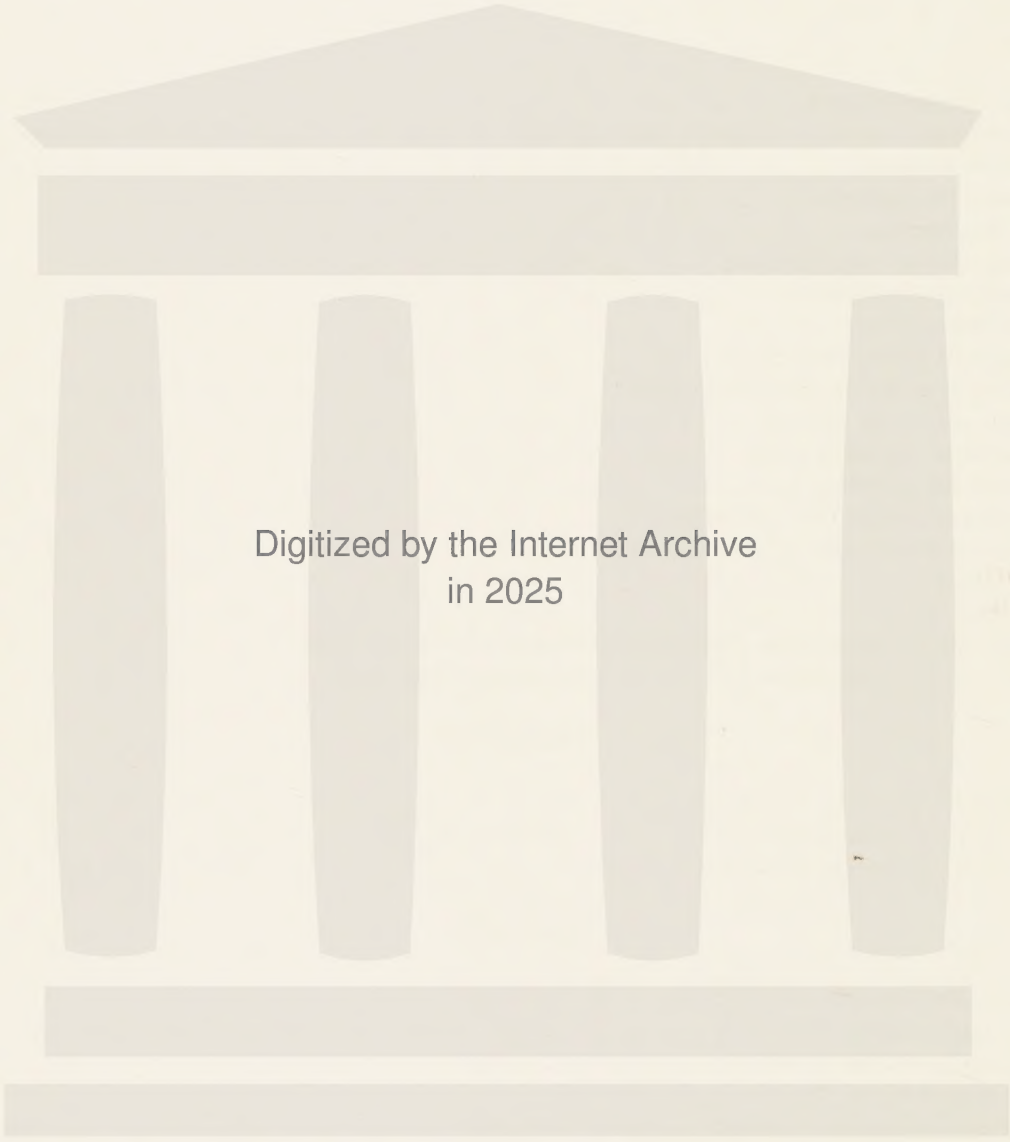

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ABSTRACT

This report lists the results obtained on the following three cruises in the region of the United States tropical tuna fishery: TO-58-2, October-December 1958; TO-59-1, January-February 1959; and TO-59-2, August-September 1959.

The main objective of these cruises was to compare distribution of ocean properties and features in the Gulf of Tehuantepec, on the Pacific coast of southern Mexico, at different seasons of the year; this investigation was begun in May-June 1958 on cruise TO-58-1 (Expedition SCOT), results of which have already been reported. Observations were made also off the Pacific coast of southern Baja California, thence across the mouth of the Gulf of California and along the coast of southern Mexico towards the Gulf of Tehuantepec, and between the Gulf of Tehuantepec and the thermal anticline off the Costa Rican coast.

Properties measured or computed on all cruises were: temperature, salinity, density, thermosteric anomaly, dynamic height anomaly, dissolved oxygen concentration, inorganic phosphorus concentration, attenuation of diffuse submarine daylight, incident solar radiation, standing crop of chlorophyll a, standing crop of zooplankton, standing crop of micronekton, primary production rate, and surface current direction and velocity (by GEK).

Data on primary production rate and total phosphorus concentration for cruise TO-58-1 (SCOT) are given in appendices.

INTRODUCTION

This report lists physical, chemical, and biological oceanographic measurements made on the second, third, and fourth cruises of the Scripps Tuna Oceanography Research (STOR) program of the Scripps Institution of Oceanography. The first cruise, known as SCOT Expedition or TO-58-1, was made in April, May, and June, 1958, and has already been reported (Holmes and Blackburn, 1960).

The STOR program, financed by the U.S. Fish and Wildlife Service, Bureau of Commercial Fisheries Contract No. 14-19-008-9354, is concerned with the understanding and predictability of changes in the aggregation and dispersal of yellowfin and skipjack tuna in the part of the eastern tropical Pacific Ocean fished by United States vessels. Part of this work consists at present of detailed, seasonally repetitive oceanographic surveys of known centers of tuna aggregation, one of which is

the Gulf of Tehuantepec on the Pacific coast of southern Mexico (adjacent to Guatemala). Interest in this area was aroused as a result of a few observations made on Expedition EASTROPIC in December 1955 (Brandhorst, 1958), and a much larger survey was made by STOR investigators in May and June 1958 during SCOT Expedition (Holmes and Blackburn, 1960). It was then decided to make three more surveys at different seasons of the year, which was done with the results summarized in this report; analysis of the results of all four surveys is now proceeding.

The three cruises are known as TO-58-2, TO-59-1, and TO-59-2. Figures 1 to 3 show the cruise tracks and observation positions.

TO-58-2 began at San Diego, California, on October 31, 1958, and ended there on December 8, 1958. The ship was the *Spencer F. Baird*, and the cruise leader was Dr. Gordon W. Groves.

TO-59-1 began at San Diego on January 15, 1959, and ended there on February 25, 1959. The ship was the *Stranger*, and the cruise leader was Mr. Robert W. Holmes.

TO-59-2 began at San Diego on August 13, 1959, and ended there on September 22, 1959. The ship was the *Hugh M. Smith*, and the cruise leader was Dr. Maurice Blackburn.

As figures 1 to 3 show, each cruise was used to make observations in other tuna

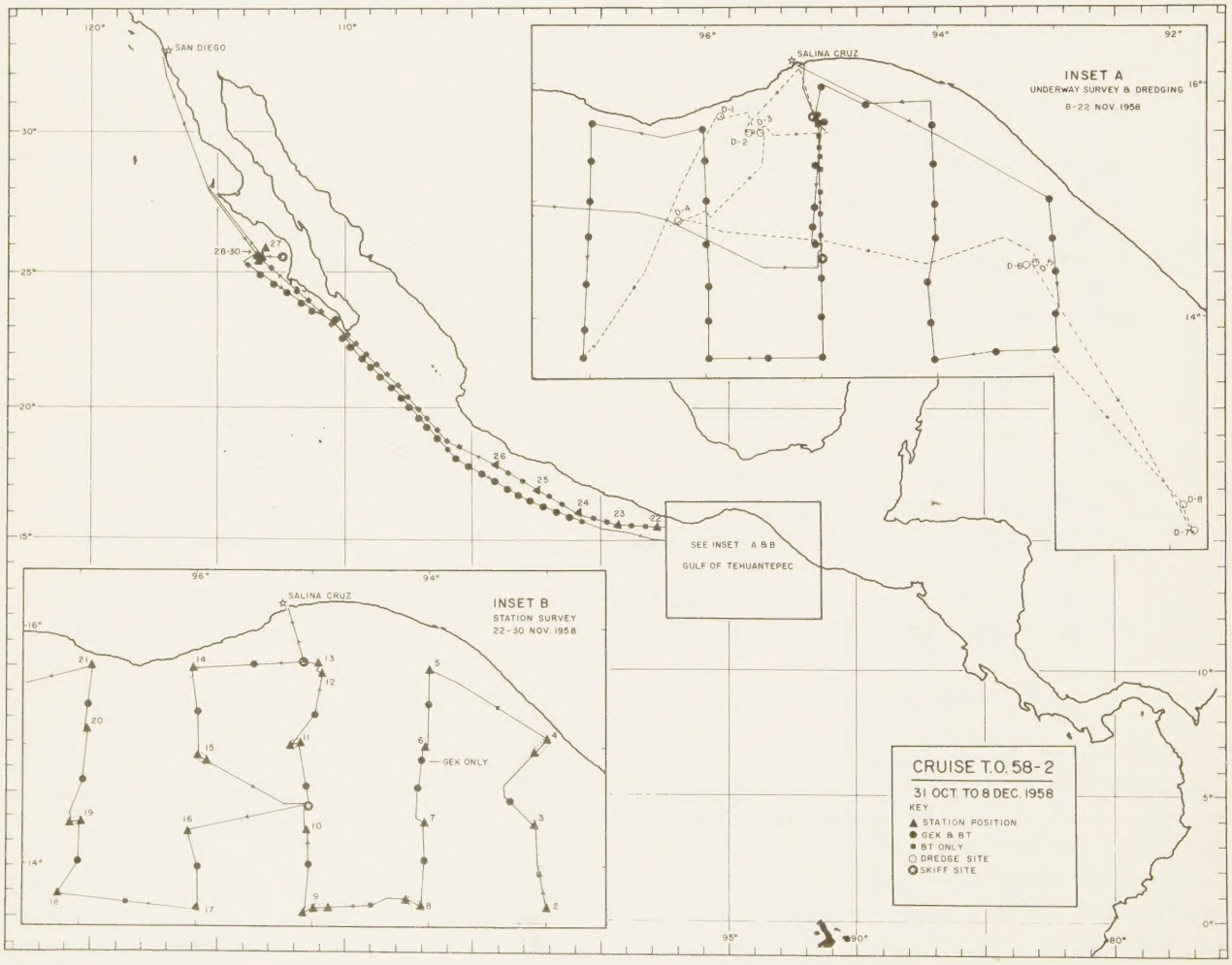

Figure 1.--Track chart of cruise TO-58-2.

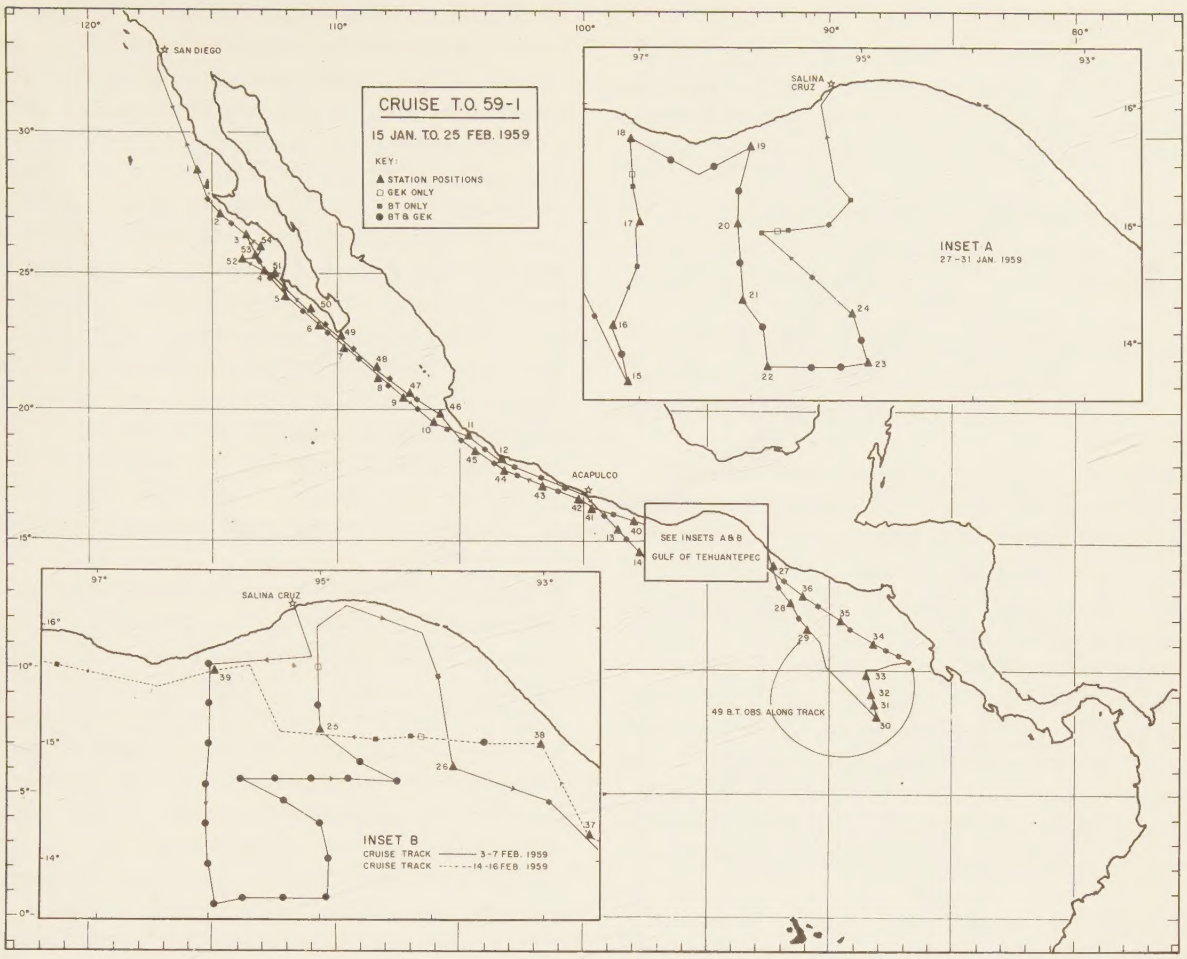

Figure 2.--Track chart of cruise TO-59-1.

fishing areas as well as in the Gulf of Tehuantepec. The resulting data are included in this report. The areas covered are as follows:

Pacific coast of southern Baja California, some observations on each cruise and especially on TO-59-2; the work on TO-59-2 consisted of occupying part of the station pattern normally occupied by ships of the Scripps Institution and Bureau of Commercial Fisheries in connection with the California Cooperative Oceanic Fisheries Investigations (CalCOFI) (fig. 3A) while the CalCOFI ships occupied the rest of the pattern; for CalCOFI purposes this part of cruise TO-59-2 is known as cruise 5908 and will so appear in their reports;

Mouth of the Gulf of California and along the coast of southern Mexico between latitudes 21° and 16° N., some observations on each cruise;

From the Gulf of Tehuantepec to the Costa Rica thermal anticline at latitude 8° N., on TO-59-1 only.

During TO-58-2 the regular STOR program was suspended for a week so that members of another Scripps Institution project could undertake deep dredging (fig. 1A). This work is not mentioned further in this report. Some effort was devoted on the same cruise to mooring and attending unmanned temperature-wind-recording stations in Baja California and Gulf of Tehuantepec waters (positions shown in fig. 1), but for various reasons acceptable results were few and do not bear further mention in this report.

The Inter-American Tropical Tuna Commission and the Geophysics Institute of the National University of Mexico assisted the Scripps Institution in staffing some of the cruises.

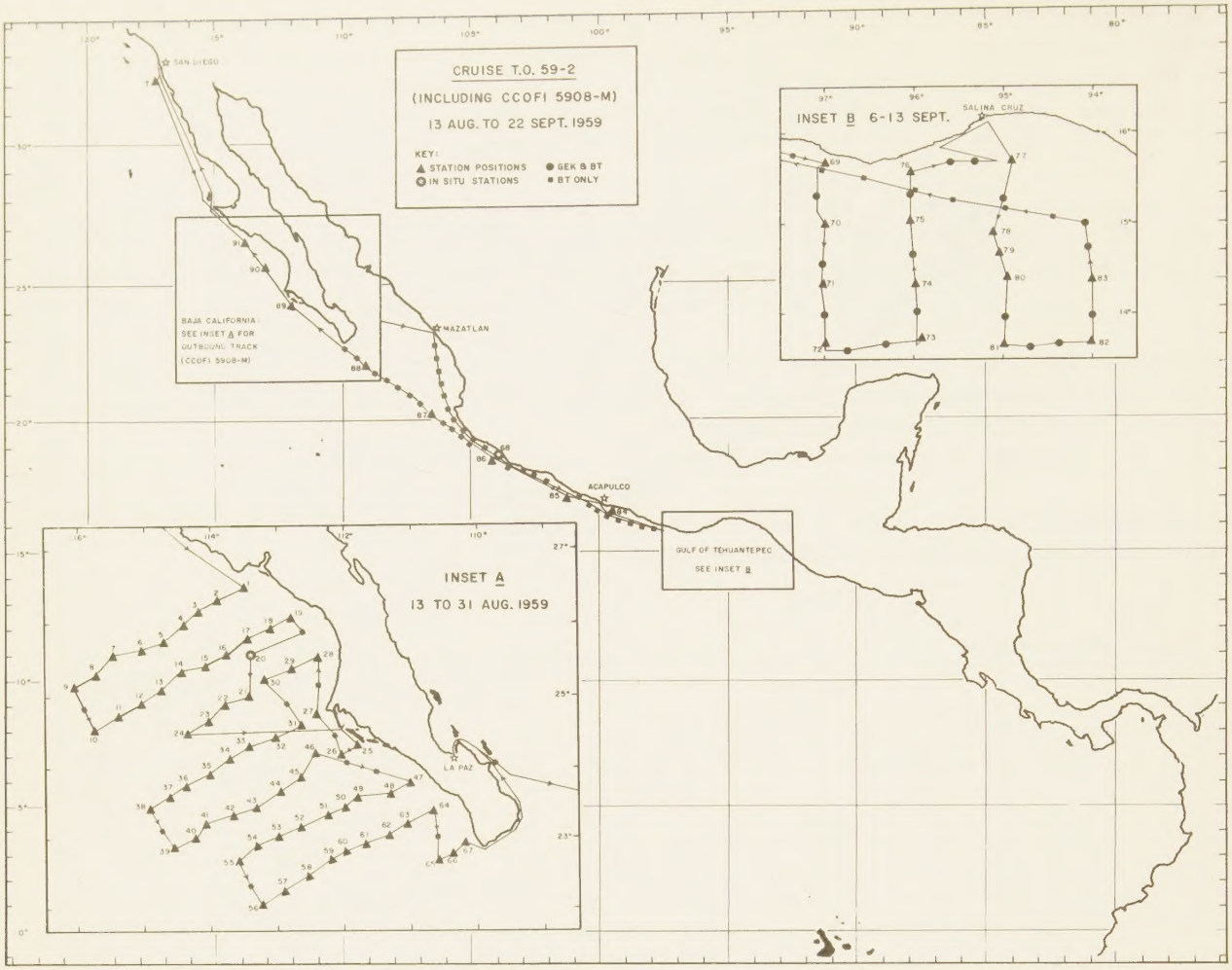

Figure 3.--Track chart of cruise TO-59-2.

PROCEDURES

Observations were made on station and between stations.

Holmes and Blackburn (1960) distinguished four kinds of station: regular forenoon, regular night, in situ, and "special". The first three kinds were occupied along a prearranged track when the appropriate times of day, rather than particular positions, were reached: this is appropriate in situations where variation in ocean properties between times of day can be expected to be large compared with that between days or areas; e.g., in surveys of large and fairly uniform regions of the tropical ocean, especially surveys in which emphasis is placed upon distribution of biological properties. The other ("special") stations were occupied according to position rather than time of day: this is appropriate in situations where between-days and between-areas variation can be expected to be as large as variation between times of day or larger, or where the latter source of variation is of less interest, so that the principal need is for a series of stations to be occupied at prearranged places in the shortest possible time; e.g., in surveys of coastal regions where conditions are highly variable in time and space, especially surveys in which emphasis is placed upon distribution of physical properties.

The main purpose of these three cruises was to make synoptic pattern-like surveys in the Gulf of Tehuantepec, and a similar operation in Baja California waters was carried out on TO-59-2. The procedure on these surveys was to work along the prearranged station pattern as quickly as possible, making standard

oceanographic observations at each station as soon as it was reached and departing promptly for the next station, with the following exceptions: any station that was reached between 1000 and 1130 hours (local time) was generally worked as a regular forenoon station; any station reached between 2200 and 0200 hours was generally worked as a regular night station; and special arrangements were made to work a few stations as in situ stations. In areas where no station patterns were specified the ships generally occupied only two stations each day, a regular forenoon and a regular night. Thus, most of the stations occupied on these cruises were equivalent to the "special" stations of Holmes and Blackburn (1960), but there were several stations of the other three kinds.

The operations most consistently carried at regular forenoon stations were: bathythermograph (BT) lowering, Nansen bottle cast to approximately 1,000 m. (500 m. in Baja California waters, stations 1 to 67 on TO-59-2, to agree with CalCOFI procedure); two Van Dorn-type plastic sampler casts to approximately 100 m., for water samples for chlorophyll *a* and productivity studies; submarine photometer lowering, to approximately 100 m.; and oblique zooplankton meter-net tow to approximately 300 m. (140 m. in Baja California, stations 1 to 67, TO-59-2, to agree with CalCOFI procedure).

The operations most consistently carried at regular night stations were: bathythermograph lowering, Nansen bottle cast (as above), oblique zooplankton meter-net tow (as above), and oblique nekton net tow to about 90 m.; and one plastic sampler cast, on TO-59-2 only.

The operations performed at in situ stations were those for regular forenoon stations, together with the special operations required for in situ measurement of productivity (see "Methods").

Operations at other stations normally were: bathythermograph lowering, Nansen bottle cast (as above), and oblique zooplankton meter-net tow (as above). Occasionally the Nansen bottle cast was omitted or reduced to a single bottle at 10 m.

Frequent, but not regular observations of other kinds were mainly: surface current by geomagnetic electrokinetograph (GEK), horizontal Clarke-Bumpus closing-net zooplankton tows, and surface zooplankton meter-net tow.

All available station observations, except those made by bathythermograph and GEK, are listed in tables 1 to 3.

Stations are identified by unhyphenated numbers, e.g., 26, 55. They are all shown, numbered, in figures 1 to 3.

Observations between stations consisted of bathythermograph lowerings, surface-current measurements by GEK (in certain areas only), and high-speed nekton net tows. The bathythermograph and GEK observations are listed, together with similar observations made at stations, in tables 4 and 5; the high-speed net tows are listed in table 6 for TO-59-2, which was the only cruise on which they were made on a routine, nonexperimental basis. A few between-station observations on surface chlorophyll *a* and productivity have been included with station data in tables 1 to 3.

Between-station observations are identified by hyphenated numbers, e.g., 26-1 (first observation after station 26), 55-3 (third observation after station 55), 0-2 (second observation after commencement of cruise, prior to station 1). They are shown, but not numbered, in figures 1 to 3.

Continuous observations were made of surface temperature (by Taylor or Foxboro thermograph, not mentioned further in this report) and incident solar radiation.

METHODS

The following notes refer to the kinds of observations listed in tables 1 to 6. A dash indicates a missing observation.

Weather observations

Wind force is given according to the Beaufort scale. Entries for barometric pressure, weather, cloud type, cloud amount (cover), and

sea (height) are given according to codes in the *Bathythermograph Observation Log* published by the U.S. Navy Hydrographic Office.

Temperature, salinity, density, thermosteric anomaly, and dynamic height anomaly

Temperature was measured with standard reversing thermometers. Nansen bottle spacing in the upper 150 m. was determined by the thermal structure as shown by a BT, and an attempt was made to place bottles, in this part of the water column, at intervals of equal temperature rather than at intervals of equal depth.

Salinity was determined (ashore) by converting from chlorinity determinations made by the Knudsen method.

Processing of the data was carried out by the Data Collection and Processing Group, Division of Marine Resources, Scripps Institution of Oceanography, using the method of Klein.[1] The 125-m. level was introduced into the integration to obtain greater accuracy in the determination of ΔD (geopotential anomaly). The interpolated values at 125 m. are not tabulated.

Temperatures from reversing thermometers are recorded in hundredths of a degree. Extrapolated values and values interpolated between remote observations are entered within parentheses. A dash indicates a missing observed value. The time is the time of messenger release. For stations where two hydrographic casts were made, each messenger time and each wire angle is given.

Three special notations have been used in listing these data.

To indicate a premature or delayed reversal of the bottle which results in certain depth and property errors, the following notation is used:

p: pretrip or posttrip

[1]Klein, H. T., MS. A new technique for processing physical oceanographic data. Scripps Institution of Oceanography, La Jolla, California.

Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations:

r: rejected value (seems to be definitely wrong);

u: uncertain value (may be correct; occasionally it can influence the drawing of the property curve).

The following remarks concern the first part of cruise TO-59-2 (stations T, 1 to 67; CalCOFI cruise 5908, *Hugh M. Smith*, see "Introduction" and table 3): data from a "test" station (T), occupied near San Diego, are listed; each station is identified by a serial number and in parentheses by another number, the latter for CalCOFI purposes [e.g., 57(150.55), 7(130.60), T(97.32)]; and hydrographic casts were usually made to approximately 500 m. (standard CalCOFI procedure).

Except on the first part of TO-59-2, hydrographic casts were usually made to approximately 1,000 m. Additional surface-temperature data appear in table 4.

Dissolved oxygen

Measurements were made routinely at sea, by the standard Winkler method, on water samples obtained by Nansen bottles.

Inorganic phosphorus

Phosphate concentrations were measured routinely at sea, on water samples obtained by Nansen bottles, according to the method of Wooster and Rakestraw (1951). Duplicate samples were used, and the concentrations averaged if they agreed within the 0.05 μg. at. PO_4/l.; if the difference was greater, both values were recorded.

Total phosphorus

Concentrations were measured for selected water samples taken in plastic samplers on cruise TO-59-1 only (see table 2, stations 27, 29, 30, 35, 37, 40, 42, 44, 46, 47, 49, 51) by Nathaniel Corwin of the Woods Hole

Oceanographic Institution. The method is that of Ketchum, Corwin, and Keen (1955). Similar measurements, now available for selected samples taken on Expedition SCOT (TO-58-1) are given in Appendix 2.

Nitrate, nitrite, and silicate

Concentrations were determined, at sea, for selected Nansen bottle water samples on cruise TO-59-2 only (see table 3, stations T, 5, 16, 20, 34, 38, 46, 49, 68, 78). The methods were described by Strickland (1958). Nitrate was measured by reduction to nitrite with hydrazine; nitrite was measured by diazotization with sulfanilamide followed by coupling to N(1-naphthyl)ethylene diamine; and silicate was measured by forming the silicomolybdate complex followed by reduction with metol-oxalic acid solution. All determinations of the resulting colored products were made with the Beckman DU spectrophotometer. To calibrate these methods, a set of standard solutions containing known amounts of nitrate, nitrite, and silicate was processed with each set of samples. Reagent blanks were run with each set, and all samples were analyzed in duplicate.

Analyses for nitrite and silicate were highly satisfactory: duplicate determinations always fell within $\pm$ 5 percent of a mean value, and the slope of the calibration curve was constant within $\pm$5 percent from station to station. Analyses for nitrate were less satisfactory: duplicates sometimes did not agree to within $\pm$5 percent of a mean value, in which case the results were rejected. The slope of the nitrate calibration curve varied greatly from station to station, probably because of the motion of the ship. Variations in reagent blanks would result in errors of $\pm$0.1 μg.at./l. for nitrate, $\pm$0.02 μg.at./l. for nitrite, and $\pm$0.05 μg.at./l. for silicate.

Incident solar radiation

A gimbals-mounted Eppley 10-junction pyrheliometer was mounted above all superstructure on the ship. The signal was recorded with a 0-10 mv. Speedomax recorder. The daily curve was integrated with a planimeter. The daily incident radiation total is given for the regular forenoon station of the day, if there was one, otherwise for some other station occupied during the day.

Submarine daylight

Photometer lowerings were made at regular forenoon stations between the hours of 1200 and 1400 local time. Methods of collecting and processing the data were the same as those described by Holmes and Blackburn (1960).

Chlorophyll *a* standing crop

Water samples were collected in Van Dorn-type plastic samplers and filtered, extracted, and analyzed spectrophotometrically for chlorophyll *a* as described by Holmes and Blackburn (1960). The integrated chlorophyll *a* value for the sampled water column was obtained by integration of smoothed profiles with a polar planimeter.

Primary production (photosynthesis)

The following information refers to data from Expedition SCOT (TO-58-1) as well as those from the three later cruises; the SCOT data, not previously published, are given in Appendix 1.

The carbon-14 method was employed in these studies to determine the rate of carbon fixation by the phytoplankton. The C^{14} solution was prepared and standardized in the manner described by Steemann Nielsen (1952) with the exception that glass-redistilled water rather than artificial sea water was used as the solvent. The C^{14} solution was then filtered through an HA Millipore filter and put in 10-ml. glass ampules which were immediately autoclaved. It was added with a plastic syringe and stainless steel needle provided with a positive stop. The radioactivity of the samples was measured using Geiger-Muller gas, a Nuclear-Chicago Automatic Sample Changer (Model C-110B) and a Nuclear-Chicago Scaler (Model 182A). At least 1,280 disintegrations were counted from each sample.

All the Pyrex bottles used for incubation in these studies were aged in sea water and after use were washed with a detergent followed by an acid (HCl) and sea-water rinse.

Immediately prior to drawing of the sample, each bottle was rinsed three or more times with sea water collected at the sample depth.

The data presented in these pages have been corrected for the isotope effect, but not for respiration or dark-bottle uptake. Replicate values are given when two or more samples were obtained from a given depth and dark-bottle uptake as well. The total CO_2 concentration of sea water was assumed to equal 90 mg./l. and all of the productivity calculations have been made using this value.

The in situ vertical measurements of productivity were carried out in the following manner. A water sample was collected at each desired depth with the plastic Van Dorn-type sampler shortly before daylight. The samples were transferred to clean, well-aged, 125-ml. Pyrex bottles and the C^{14} solution injected with a plastic hypodermic syringe and stainless steel needle. The samples were resuspended at or slightly before dawn, at approximately the depth at which they were collected, on a weighted rope supported by a free-floating glass buoy (14 in. in diameter) enclosed in a cord netting, or by a series of plastic floats which were attached to a bamboo pole bearing a flag and radar reflector at its top. The surface sample was attached to the side of the glass buoy, or plastic floats, just under the sea surface. The samples were collected at noon, local time, and were promptly filtered and dried for counting. The data have been tabulated under the heading "In Situ".

The samples incubated on shipboard were inoculated with C^{14} in the same manner as the in situ material. The incubator itself was similar to that employed by Steemann Nielsen (1952). Temperature control was achieved by circulating subsurface sea water through the water bath at a rate of 4 to 6 l. per minute. The temperature in the bath fluctuated somewhat but never exceeded the sea-surface temperature by more than 2.3° C., and usually by less than 1° C. Temperatures less than that of the sea surface were not observed in the incubator. The samples were illuminated by a bank of 10 daylight-type fluorescent lamps. The intensity of the lamps was adjusted to 1,000 foot-candles by using a continuously adjustable autotransformer (Variac) in the lamp circuitry. The data have been tabulated under the heading "Lab. Incubator".

Surface productivity ("in situ") was measured in one of two ways. On SCOT (TO-58-1) the samples were inoculated with C^{14} and trailed astern of the vessel just under the sea surface from local noon until sunset or, less frequently, from sunrise until local noon; the data have been tabulated under the heading "Trailing Bottle" in appendix 1. On TO-58-2, TO-59-1, and TO-59-2 surface water was placed in 125-ml. Pyrex bottles, inoculated with C^{14} and placed in a deck incubator. The deck incubator was located in a position to yield minimum shadow disturbance. Temperature regulation was achieved by circulating surface sea water through the unit at about 3 to 5 gallons per minute.

On TO-59-1 (stations 27 to 51) the photosynthesis of samples from additional depths were measured in the deck incubator. Neutral filters were placed above these samples. The percent transmission in the visible range is given adjacent to the photosynthesis values in the tables.

Data on the above-mentioned "deck incubator" samples, surface and subsurface, have been tabulated under this heading.

Phytoplankton net sample

A Hensen-type net with a mesh size of 32 μ, and mouth diameter of 17 cm., was hauled vertically from 50 m. to the surface.

Zooplankton standing crop

The measurements reported are all displacement volumes of formalin-preserved material per 1,000 $m.^3$ of water strained, the latter being estimated by flowmeter mounted in the mouth of the net. They refer to oblique hauls by non-closing net with a mouth diameter of 1 m. (N-C N, O), horizontal hauls by the same net (N-C N, H), and horizontal hauls by a modified Clarke-Bumpus net [C N (C-B), H].

The nonclosing meter net is the standard net of the California Cooperative Oceanic Fisheries

Investigations, now standard also in investigations by the Scripps Institution and Inter-American Tropical Tuna Commission in the eastern tropical Pacific; the main body of the net is made of 30XXX nylon grit gauze, the rear section and detachable cod end of 56XXX nylon grit gauze.

Oblique hauls with this net were made usually through the upper 300 m. of water, by paying out the net on 450 m. of wire at 50 m./min. and retrieving it at 20 m./min., the ship speed being varied to maintain a wire angle of 45° during the retrieving period. However, on stations 1 to 67 of TO-59-2 an attempt was made to make oblique hauls through the upper 140 m. only, by paying out 200 m. of wire instead of 450 m., this being the standard procedure by CalCOFI investigators for the Baja California region; in fact, the net generally did not go as deep as 140 m. because of technical difficulties. The greatest depths actually reached were estimated for all hauls from wire angles and wire lengths. Horizontal hauls with the nonclosing meter net were all made just below the sea surface.

The closing Clarke-Bumpus net or sampler was used on TO-59-1 and TO-59-2 to obtain special samples for Paul Sund, of the Inter-American Tropical Tuna Commission, who has kindly made available the data on displacement volumes. The equipment is an enlarged Clarke-Bumpus sampler with mouth diameter 25 cm.; the body of the net is made of 706 Nitex and the detachable cod end of 316 Nitex. The sampler was lowered, closed, to a desired depth; it was then opened and hauled horizontally, then closed and brought to the surface. Routinely, a series of three 15-min. or 30-min. hauls was made at each station where the samplers were used: one haul in the center of the mixed layer, one in the thermocline, and one well below the thermocline.

The tabulated standardized volumes are given for the total zooplankton (T) and the small zooplankton (S) of each haul; small zooplankton is total zooplankton with organisms of length $\geq$ 5 cm. removed.

Flowmeters were calibrated before and after cruises.

Micronekton standing crop

The large zooplankton and small nekton (organisms from 0.5 to 10 cm. long, approximately, for which the term "micronekton" is appropriate) were captured in two different nets.

One of these nets, described previously by Holmes and Blackburn (1960), was essentially a very large coarse-meshed plankton net: about 20 ft. in overall length, mouth opening 5 ft. square, Marion Textiles pattern 467 nylon throughout, terminating in a detachable meter-net cod end of 56XXX nylon grit gauze.

This net was used to make oblique hauls in the upper 90 m. of water at night stations, at a speed of 5 kn. On Expedition SCOT (TO-58-1) the net was used with attached weights (Holmes and Blackburn, 1960). The work on TO-58-2 consisted of experimental hauls (not listed in this report) with streamlined 45-lb. depressors instead of weights; as a result, the hauling procedure on TO-59-1 and TO-59-2 was restandardized for a net used with two depressors to sample the upper 90 m. of water, as follows: 350 m. of 3/8-in. wire paid out at 25 m./min. and retrieved at 10 m./min., ship speed 5 kn. throughout, total time 49 min. Actual maximum depth was determined by an attached bathythermograph. No flowmeter was used, and the tabulated volumes are displacement volumes of the total catch, minus tunicates, siphonophores, and medusae.

The other ("high-speed") net was used at the ordinary cruising speed of the ship, which varied between 9 and 10 kn., in the upper 10 m. only, normally for periods of from 2 to 3 hr. when opportunity offered. Hauls on TO-58-2 and TO-59-1 were experimental and have not been listed; those on TO-59-2 were made routinely and have been listed in table 6. The net is conical, of mouth diameter 70 cm., about 8-1/2 ft. in overall length, Marion Textiles pattern 467 nylon throughout, terminating in a detachable meter-net cod end of 56XXX nylon grit gauze. It was normally towed with 50 m. of 3/8-in. wire out, with one streamlined 45-lb. depressor. No flowmeter was used; but identical tows of the complete net with flowmeter

and of the flowmeter in the frame without the net indicated that the net strains about 95 percent of the water in its path at a speed of 9 kn. The tabulated volumes are displacement volumes of the total catch minus tunicates, siphonophores, and medusae.

Bathythermograph (BT) observations

Table 4 has been compiled from information tabulated on BT prints by the BT Section of Scripps Institution. It includes: surface temperature; class of temperature-depth trace (C, M, N, or P, according to U.S. Navy Hydrographic Office criteria); and depth of surface layer (SL), defined as depth from surface to top of sharp negative temperature gradient (or depth of maximum temperature if there is a positive gradient).

Surface current velocity and direction (GEK)

Table 5 lists all available measurements, which were made with neutrally buoyant cable.

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SPECIAL ABBREVIATIONS IN TABLES

C N (C-B):	closing net (Clarke-Bumpus)
e:	estimated
H:	horizontal
N-C N:	nonclosing net
o:	oblique
S:	small
T:	total
ex:	extrapolated

Note: all zooplankton values are actually milliliters per 1,000 $m.^3$.

Table 1. Station data. Cruise TO-58-2

Cruise TO-58-2

Underway observations prior to first station: surface chlorophyll a and productivity

Sta. No.	Date (1958)	Time Zone	Time Begun	Depth (m.)	Chlorophyll a (mg./m.^{3})	Laboratory Incubator (mg. C/m.^{3}/hr. at 1000 ft.-candles)	Dark Bottle (mg. C/m.^{3}/hr. at 1000 ft.-candles	Deck Incubator (mg. C/m.^{3}/day)	Lat. (N.)	Long. (W.)
A-2	XI-2	+8	1130	0	0.12	0.139	-	-	25°39'	113°26'
					0.15	0.175	-	-		
						0.186	-	-		
B-2	XI-3	+8	1130	0	0.19	1.051	0.026	-	25°22'	114°04'
					0.17	1.13	0.022	-		
						1.027	-			
C-2	XI-4	+7	1130	0	0.12	lost	-	-	23°04'	110°20'
D-1	XI-5	+7	1130	0	0.093	1.39	-		20°02'	107°26'
						1.38	-	-		
						1.29	-	-		
E-25	XI-6	+7	1135	0	0.11	1.12	0.054	2.82	17°14'	104°07'
						1.021	0.027	9.99		
						1.046	-	9.010		
F-23	XI-7	+7	1130	0	0.099	0.519	0.027	5.79	15°30'	100°13'
						0.692	0.108	6.32		
						0.548	-	9.37		
G	XI-8	+7	1130	0	lost	2.40	0.186	31.2	14°31'	95°42'
						2.32	0.312	34.9		
						2.19	-	35.8		

Table 1.--Continued

STATION 2

SPENCER F. BAIRD; November 22, 1958; 1650 G.c.t. (zone +6, 1050); 13°37'N., 92°57'W.; sounding, 2800 fm.; wind, 270°, force 2; temp., 87.0°F. dry, 78.5°F. wet; weather, clear; sea, moderate; wire angle, 08°; BT slide No. 2.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	28.89	33.04	-	0.21	712	0	28.89	33.04		20.66	712	0.00
9	28.76	33.02	-	0.15	709	10	28.75	33.02		20.69	708	0.07
19	28.47	33.06	0.88r	0.46	697	20	28.45	33.06		20.82	697	0.14
28	26.63	34.14	5.63	0.64	563	30	25.70	34.23	4.98	22.57	528	0.20
38	20.28	34.67	1.85	1.5	348	50	17.35	34.70	1.13	25.22	276	0.28
48	17.73	34.70	1.16	1.9	284	75	14.95	34.84	0.48	25.87	214	0.34
58	16.01	34.72	0.96	2.01a)	244	100	14.13	34.85	0.53	26.06	196	0.40
77	14.82	34.84	0.46	2.4	210	150	13.06	34.85	0.39	26.28	175	0.49
96	14.23	34.85	0.54	2.4	198	200	12.45	34.86	0.28	26.41	163	0.58
149	13.06	34.85	0.38	2.4	174	250	11.86	34.82	0.20	26.50	154	0.66
196	12.50	34.86	0.29	2.5a)	163	300	11.22	34.78	0.13	26.58	147	0.74
293	11.30	34.78	0.13	2.6a)	148	400	9.89	34.69	0.00	26.75	131	0.88
386	10.10	34.70	0.00	3.00	133	500	8.22	34.62	0.00	26.96	111	1.01
479	8.57	34.63	0.00	3.3	114	600	7.03	34.60	0.01	27.12	96	1.12
578	7.25	34.60	0.00	3.4	98	700	6.22	34.58	0.07	27.22	86	1.23
774	5.72	34.57	0.11	3.3b)	81	800	5.57	34.57	0.13	27.29	79	1.32
971	4.74	34.59	0.18	3.6a)	68	1000	(4.63)	(34.60)		(27.42)	(67)	(1.48)

Incident solar radiation: daily T 424 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark
0	0.049	0.854c)	0.036	10.2	0.318, 0.424, 0.296
10	0.070	0.176	-	-	-
25	0.091	0.306	-	-	-
50	0.21	0.096	-	-	-
75	0.11	0.183	-	-	-
100	0.093	0.039	-	-	-
150	0.013	0.076	-	-	-
200	0.054	-	-	-	-
250	-	0.105	-	-	-

Water column: 13 mg./m.^{2}[d)] 19 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 334 m., 0800 hr.[e)] (22'40"),[f)] 141 ml. T, 141 ml.[g)] S.

a) Duplicate values: 58 m., 2.08; 196, 2.6; 293, 2.08; 971, 3.9 µg. at./l.
b) Single determination only.
c) Observation at 4 meters, not surface.
d) All chlorophyll a water-column measurements were made from 0 to 100 meters.
e) Local times only are given for all observations other than hydrographic casts.
f) Duration of haul.
g) All zooplankton values per 1000 m.^{3} .

STATION 3

SPENCER F. BAIRD; November 23, 1958; 0045 G.c.t. (zone +6, 1845, XI-22); 14°22'N., 93°07'W.; sounding, 280 fm.; wind, 310°, force 2; temp., 85.6°F. dry, 79.3°F. wet; weather, partly cloudy; sea, moderate; wire angle, 04°; BT slide No. 3.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_{T} 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_{T} 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	29.31	32.83	4.39	0.087	740	0	29.31	32.84	4.39	20.37	740	0.00
9	28.88	32.75	4.38	0.089	733	10	28.88	32.77	4.41	20.46	730	0.07
19	29.50	33.44	4.57	0.20	703	20	29.50	33.44	4.58	20.76	702	0.15
29	29.08	33.58	4.63	0.24	680	30	28.90	33.62	4.62	21.07	672	0.21
39	24.70	34.52	4.60	0.49	478	50	19.25	34.68	1.84	24.73	323	0.31
59	17.61	34.72	1.16	2.1	280	75	16.12	34.78	0.66	25.57	243	0.38
78	15.85	34.79	0.59	2.2a)	236	100	14.60	34.85	0.49	25.96	206	0.44
97	14.74	34.85	0.50	2.3a)	208	150	13.20	34.83	0.38	26.24	179	0.54
149	13.21	34.83	0.35	2.5	179	200	12.60	34.83	0.43	26.36	168	0.63
196	12.64	34.83	0.43	2.5a)	168	250	11.91	34.81	0.32	26.48	156	0.71
294	11.32	34.78	0.13	2.7	148	300	11.25	34.78	0.13	26.57	147	0.79
389	10.21	34.70	0.00	2.9	135	400	10.06	34.70	0.00	26.72	133	0.94
489	8.46	34.65	0.00	3.3	112	500	(8.29)	(34.65)		(26.97)	(110)	(1.07)

Incident solar radiation: daily T 424 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 288 m., 1750 hr. (32'24"), 175 ml. T, 170 ml. S.

STATION 4

SPENCER F. BAIRD; November 23, 1958; 0720 G.c.t. (zone +6, 0120); 14°56.5'N., 93°06.5'W.; sounding, 18 fm.; wind, 080°, force 3; temp., 85.0°F. dry, 79.5°F. wet; weather, partly cloudy; sea, moderate; wire angle, 00°; BT slide No. 4.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_{T} 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_{T} 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	30.10	32.68	4.16	0.075	777	0	30.10	32.68	4.19	19.98	777	0.00
5	30.06	32.66	4.20	0.042	777	10	30.10	32.67	4.19	19.97	778	0.08
9	30.10	32.66	4.16	0.075	778	20	29.40	33.51	4.29	20.84	694	0.15
14	30.14	33.02	4.30	0.10	754							
19	29.52	33.48	4.30	0.22b)	700							
24	28.68	33.62	4.14	0.334	665							

Incident solar radiation: daily T 431 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, H to 0 m., 0045 hr. (15'30"); 138 ml. T, 138 ml. S.

Night-lighting operations.

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a) Duplicate values: 78 m., 2.3; 97, 2.4; 196, 2.2 µg. at./l.
b) Duplicate value, 0.29 µg. at./l.

Table 1.--Continued

STATION 5

SPENCER F. BAIRD; November 23, 1958; 1340 G.c.t. (zone +6, 0740); 15°39'N., 93°59.5'W.; sounding, 30 fm.; wind, 360°, force 4; temp., 82.0°F. dry, 74.4°F. wet; weather, partly cloudy; sea, rough; wire angle, 16°; BT slide No. 5.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	28.27	33.48	3.34	0.34	660	0	28.27	33.48	3.34	21.19	660	0.00
19	26.34a)	33.96	3.57	0.79	566	10	28.08	33.53	3.36	21.28	652	0.07
24	23.60	34.39	1.99	1.2	457	20	26.00	33.97	3.53	22.28	556	0.13
28	22.29	34.58	2.00	1.3b)	407	30	22.00	34.60	1.94	23.94	398	0.17
38	19.98	34.69	1.32	1.7	340							
47	17.99	34.75	0.88	2.0	287							

Incident solar radiation: daily T 431 g.-cal./$cm.^2$.

Biological Data

Zooplankton: N-C N, o to 26 m., 0825 hr. (5'10"), 527 ml. T, 527 ml. S.

STATION 6

SPENCER F. BAIRD; November 23, 1958; 2057 G.c.t. (zone +6, 1457); 14°59.5'N., 94°01.5'W.; sounding, 140 fm.; wind, 330°, force 3; temp., 86.5°F. dry, 78.5°F. wet; weather, clear; sea, rough; wire angle, 08°; BT slide No. 6.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	27.94	33.33	4.42	0.39	661	0	27.94	33.33	4.42	21.18	661	0.00
9	27.84	33.35	4.47	0.38	657	10	27.81	33.36	4.48	21.25	655	0.07
14	25.42c)	33.95	3.91	0.83d)	540	20	18.20	34.70	1.78	25.01	296	0.11
19	18.39	34.69	1.89	1.7d)	300	30	16.77	34.77	0.84	25.41	258	0.14
24	17.52	34.71	1.32	1.9	278	50	15.42	34.85	0.39	25.78	222	0.19
33	16.35	34.81	0.63	2.2	245	75	14.97	34.85	0.38	25.88	213	0.24
48	15.47	34.85	0.37	2.5	224	100	14.48	34.84	0.40	25.98	204	0.30
100	14.48	34.84	0.40	2.5	204	150	13.21	34.83	0.40	26.24	179	0.39
147	13.22	34.83	0.41	2.4	179	200	(12.34)	(34.83)	(0.16)	(26.41)	(163)	(0.48)
199	12.38	34.83	0.15	2.8d)	164							

Incident solar radiation: daily T 431 g.-cal./$cm.^2$.

a) Alternate value, 26.12°C, not used in interpolation.
b) Single determination only.
c) Mean value of 25.35° and 25.48°C.
d) Duplicate values: 14 m., 0.76; 19, 1.6; 199, 2.7 µg. at./l.

STATION 6 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.32
10	0.33
25	0.55
50	0.18
75	0.12
100	0.094
150	0.055
200	0.045

Water column: 25 mg./m.^{2}.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 101 m., 1413 hr. (24'00"), 369 ml. T, 369 ml. S.

STATION 7

SPENCER F. BAIRD; November 24, 1958; 0305 G.c.t. (zone +6, 2105, XI-23); 14°21.5'N., 94°02'W.; sounding, 2100 fm.; wind, 040°, force 2; temp., 80.0°F. dry, 76.0°F. wet; weather, clear; sea, moderate; wire angle, 14°; BT slide No. 7.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	28.90	33.39	4.38	0.33	687	0	28.90	33.39	4.38	20.92	687	0.00
9	28.90	33.43	4.34	0.33	684	10	28.89	33.43	4.34	20.95	683	0.07
14	27.80	33.69	4.31	0.52	631	20	20.30	34.65	2.50	24.44	350	0.12
19	20.91	34.63	2.65	1.4	367	30	17.64	34.70	1.58	25.14	283	0.15
28	17.95	34.70	1.72	1.9	290	50	15.22	34.72	0.79	25.72	228	0.20
38	16.33	34.67	1.05	2.1a)	255	75	14.41	34.83	0.46	25.98	203	0.26
46	15.39	34.70	0.83	2.2a)	232	100	13.65	34.82	0.32	26.14	188	0.31
70	14.59	34.83	0.50	2.4	206	150	12.71	34.86	0.16	26.36	167	0.40
98	13.68	34.82	0.33	2.50	189	200	12.01	34.80	0.23	26.45	159	0.48
143	12.84	34.87	0.13	2.4a)	169	250	11.52	34.79	0.20	26.54	150	0.56
193	12.11	34.81	0.23	2.7	160	300	10.98	34.76	0.13	26.62	144	0.64
286	11.17	34.78	0.14	2.8	145	400	9.60	34.63	0.10	26.75	130	0.78
382	9.90	34.69	0.10	3.1	134	500	8.08	34.60	0.10	26.97	110	0.91
478	8.34	34.61	0.10	3.4	113	600	7.09	34.58	0.14	27.10	97	1.02
576	7.28	34.59	0.10	3.5	100	700	6.37	34.57	0.28	27.19	89	1.13
774	5.90	34.56	0.35	- b)	84	800	5.74	34.56	0.35	27.26	82	1.22
976	4.70	34.55	0.22	3.8a)	71	1000	(4.59)	(34.55)	(0.22)	(27.39)	(70)	(1.40)

Incident solar radiation: daily T 431 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 200 m., 1948 hr. (32'32"), 283 ml. T, 283 ml. S.

a) Duplicate values: 38 m., 2.2; 46, 2.3; 143, 2.6; 976, 3.9 µg. at./l.
b) Sample lost.

Table 1.--Continued

STATION 8

SPENCER F. BAIRD; November 24, 1958; 0903 G.c.t. (zone +6, 0303); 13°41.5'N., 94°04'W.; sounding, 2250 fm.; wind, 280°, force 3; temp., missing; weather, missing; sea, rough; wire angle, 08°; BT slide No. 8.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T^{-5} 10cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T^{-5} 10cm.^{3}/g.	ΔD dyn.m.
0	28.19	33.47	4.42	0.36	659	0	28.19	33.47	4.42	21.21	659	0.00
14	23.88	34.51	5.50	0.72	456	10	28.19	33.47	4.42	21.21	659	0.07
19	21.36	34.65	2.73	1.5a)	378	20	20.60	34.67	2.48	24.37	356	0.12
23	18.52	34.70	1.88	1.8	303	30	17.17	34.70	1.17	25.26	272	0.15
28	17.36	34.70	1.25	2.1	276	50	15.46	34.74	0.90	25.69	231	0.20
38	16.28	34.70	0.86	2.4a)	252	75	14.40	34.82	0.55	25.98	203	0.25
48	15.54	34.73	0.91	2.3	234	100	13.68	34.83	0.62	26.14	188	0.30
71	14.58	34.81	0.53	2.5	208	150	12.85	34.83	0.48	26.31	172	0.40
100	13.68	34.83	0.62	2.5a)	188	200	12.25	34.81	0.47	26.42	162	0.48
147	12.89	34.83	0.48	2.5	172	250	11.73	34.78	0.33	26.49	155	0.56
197	12.28	34.81	0.47	2.7	163	300	11.18	34.75	0.18	26.58	147	0.64
293	11.23	34.76	0.20	2.9	148	400	9.65	34.67	0.06	26.77	128	0.79
388	9.84	34.68	0.05	3.1a)	130	500	7.83	34.62	0.09	27.02	105	0.91
485	8.02	34.63	0.08	3.6a)	106	600	6.91	(34.57)	0.12	(27.11)	(96)	(1.02)
584	7.04	34.57	0.11	3.5	98	700	6.15		0.16			
782	5.58	-	0.18	-	-	800	5.47		0.19			
980	4.58	34.56	0.23	3.8	69	1000	(4.53)		(0.23)			

Incident solar radiation: daily T 452 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 276 m., 0153 hr. (31'22"), 237 ml. T, 215 ml. S; H at 0 m., 0341 hr. (16'58"), 232 ml. T, 232 ml. S.

STATION 9

SPENCER F. BAIRD; November 24, 1958; 1903 G.c.t. (zone +6, 1303); 13°39'N., 94°52'W.; sounding, 2160 fm.; wind, 020°, force 3; temp., 82.5°F. dry, 76.5°F. wet; weather, clear; sea, rough; wire angle, 02°; BT slide No. 9.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T^{-5} 10cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T^{-5} 10cm.^{3}/g.	ΔD dyn.m.
0	27.59	33.32	4.48	0.29	651	0	27.59	33.32	4.48	21.29	651	0.00
9	27.56	33.33	4.43	0.29	649	10	27.55	33.32	4.42	21.31	649	0.07
14	27.53	33.32	4.38	0.29	649	20	27.45	33.33	4.37	21.32	648	0.13
24	24.33	33.89	3.36	0.92	514	30	18.14	34.68	0.58	25.01	296	0.18
29	18.20	34.67	0.60	2.2	298	50	15.42	34.77	0.40	25.71	229	0.23
38	16.89	34.71	0.30	2.5	265	75	14.18	34.80	0.18	26.02	200	0.28
48	15.59	34.76	0.39	2.4	232	100	13.39	34.83	0.12	26.20	182	0.33
73	14.22	34.80	0.18	2.6	201	150	12.40	34.85	0.10	26.42	162	0.42
101	13.38	34.83	0.11	2.7	182	200	11.70	34.79	0.09	26.50	154	0.50
148	12.42	34.85	0.10	2.7b)	163	250	11.11	34.74	0.08	26.57	147	0.58
199	11.73	34.79	0.09	2.8	154	300	10.50	34.70	0.05	26.65	140	0.66
297	10.53	34.70	0.05	3.0	140	400	8.67	34.65	0.09	26.91	115	0.79
396	8.75	34.65	0.08	3.4b)	116	500	7.50	34.58	0.11	27.04	104	0.91
495	7.56	34.58	0.12	3.7b)	104	600	6.60	34.57	0.08	27.16	92	1.01
595	6.64	34.57	0.08	3.5	92	700	5.93	34.56	0.09	27.24	84	1.11
795	5.40	34.56	0.13	3.7b)	78	800	5.38	34.56	0.15	27.30	78	1.20
995	4.52	34.56	0.28	3.8	68	1000	(4.49)	(34.56)	(0.28)	(27.41)	(68)	(1.37)

a) Duplicate values: 19 m., 1.3; 38, 2.1; 100, 2.7; 388, 3.2; 485, 3.4 µg. at./l.
b) Duplicate values: 148 m., 2.6; 396, 3.3; 495, 3.4; 795, 3.6 µg. at./l.

Table 1.--Continued

STATION 9 (con.)

Incident solar radiation: daily T 452 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1330-1440 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
10-13°	6	634	6		
25°	11	533	9	6-9	0.0580
35°	21	271	17	9-17	0.0845
35°	31	186	25	17-25	0.0470
45°	41	127	28	25-28	0.127

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis	
		Lab. Incubator mg. C/m.^{3}/hr.	
m.	mg./m.^{3}	at 1000 ft.-candles	
		Light	Dark
0	0.30	2.80	0.111
10	0.20	1.76	-
25	0.65	3.57	-
50	0.17	0.217	-
75	0.077	0.058	-
100	0.043	0.053	-
150	0.031	0.069	-
200	0.025	0.060	0.069

Water column: 25 mg./m.^{2} 116 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 271 m., 1035 hr. (33'50"), 165 ml. T, 165 ml. S.

Table 1.--Continued

STATION 10

SPENCER F. BAIRD; November 25, 1958; 0752 G.c.t. (zone +6, 0152); 14°18'N., 95°03'W.; sounding, 2200 fm.; wind, 020°, force 6; temp., 80.6°F. dry, 75.6°F. wet; weather, clear; sea, rough; wire angle, 22°; BT slide No. 10.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	27.14	33.78	4.45	0.40	604	0	27.14	33.78	4.45	21.78	604	0.00
19	27.14	33.77	4.40	0.44	604	10	27.14	33.78	4.43	21.78	604	0.06
23	25.39	33.93	3.65	0.77a)	541	20	27.11	33.78	4.39	21.79	603	0.12
29	18.90	34.64	1.15	2.1	316	30	18.62	34.66	1.03	24.87	309	0.17
38	17.24	34.73	0.40	2.2a)	271	50	15.92	34.78	0.32	25.62	238	0.22
47	16.16	34.78	0.33	2.4	243	75	14.41	34.78	0.20	25.95	206	0.28
61	15.18	34.77	0.29	2.5	223	100	13.42	34.82	0.17	26.18	184	0.33
79	14.22	34.79	0.18	2.6	202	150	12.60	34.81	0.09	26.35	169	0.42
103	13.35	34.82	0.15	2.6	182	200	11.99	34.76	0.05	26.43	161	0.50
151	12.60	34.81	0.08	2.6	169	250	11.38	34.75	0.08	26.54	151	0.58
198	12.00	34.76	0.05	2.7	161	300	10.63	34.74	0.08	26.66	140	0.66
291	10.80	34.75	0.08	2.9	141	400	8.89	34.63	0.07	26.86	120	0.80
383	9.20	34.64	0.05	3.2	124	500	7.58	34.60	0.10	27.04	103	0.91
478	7.80	34.60	0.10	3.5	106	600	6.67	34.60	0.05	27.17	90	1.02
572	6.89	34.60	0.05	3.5	93	700	5.92	34.60	0.08	27.27	81	1.11
764	5.50	34.60	0.11	3.6a)	76	800	5.33	34.60	0.13	27.34	74	1.20
967	4.64	34.58	0.20	4.0a)	68	1000	(4.50)	(34.58)	(0.21)	(27.42)	(67)	(1.36)

Incident solar radiation: daily T 452 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 238 m., 2335 hr. (33'11"), 662 ml. T, 646 ml. S.

STATION 11

SPENCER F. BAIRD; November 26, 1958; 0016 G.c.t. (zone +6, 1816, XI-25); 15°02'N., 95°07.5'W.; sounding, 2000 fm.; wind, 010°, force 2; temp., 82.0°F. dry, 76.5°F. wet; weather, clear; sea, slight; wire angle, 03°; BT slide No. 11.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	25.25	33.97	4.87	0.67	534	0	25.25	33.97	4.87	22.51	534	0.00
10	25.10	33.98	4.54	0.72	529	10	25.10	33.98	4.54	22.56	529	0.05
19	24.87	33.98	4.12	0.84	522	20	24.86	33.98	4.10	22.64	522	0.11
29	23.76	34.13	3.50	1.1	480	30	23.60	34.16	3.42	23.14	474	0.16
39	22.16	34.38	2.59	1.5	418	50	19.41	34.63	1.65	24.65	330	0.24
48	19.77	34.61	1.77	1.9	340	75	15.70	34.78	0.49	25.66	234	0.31
58	18.14	34.69	1.23	2.1	295	100	14.45	34.84	0.45	26.00	202	0.36
76	15.64	34.78	0.48	2.6b)	232	150	13.18	34.85	0.32	26.26	177	0.36
99	14.53	34.84	0.45	2.5	204	200	12.40	34.85	0.32	26.41	163	0.55
144	13.26	34.85	0.32	2.7	179	250	11.79	34.81	0.23	26.50	154	0.63
187	12.60	34.85	0.33	2.6	166	300	10.90	34.75	0.10	26.62	143	0.70
278	11.33	34.78	0.13	3.0b)	148	400	8.90	34.64	0.09	26.87	119	0.84
365	9.51	34.67	0.08	3.3	126	500	7.67	34.60	0.10	27.02	105	0.96
458	8.13	34.60	0.10	3.6b)	110	600	6.93	34.58	0.08	27.12	96	1.07
547	7.28	34.59	0.08	3.6	100	700	6.32	34.56	0.08	27.19	88	1.17
736	6.10	34.56	0.08	3.8b)	86	800	5.75	34.56	0.11	27.26	82	1.27
929	5.06	34.56	0.14	3.8	74	1000	(4.72)	(34.56)		(27.38)	(71)	(1.44)

a) Duplicate values: 23 m., 8.4; 38, 2.3; 764, 3.7; 967, 3.8 μg. at./l.
b) Duplicate values: 76 m., 2.5; 278, 2.9; 458, 3.5; 736, 3.7 μg. at./l.

STATION 11 (con.)

Incident solar radiation: daily T 423 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 239 m., 1713 hr. (32'57"), 178 ml. T, 174 ml. S.[a)]

STATION 12

SPENCER F. BAIRD; November 26, 1958; 0739 G.c.t. (zone +6, 0139); 15°36'N., 94°55'W.; sounding, 150 fm.; wind, 360°, force 5; temp., 81.2°F. dry, 75.0°F. wet; weather, partly cloudy; sea, rough; wire angle, 35°; BT slide No. 12.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	25.86	33.77	4.36	0.47b)	566	0	25.86	33.77	4.36	22.17	566	0.00
8	25.88	33.78	4.28	0.54	567	10	25.87	33.78	4.27	22.17	566	0.06
16	25.84	33.78	4.25	0.54	565	20	25.53	33.84	4.11	22.34	551	0.11
20	25.53	33.84	4.11	0.62	551	30	19.25	34.62	1.54	24.69	326	0.16
32	18.72	34.66	1.34	2.0	312	50	15.82	34.79	0.50	25.64	236	0.21
40	16.80	34.78	0.65	2.2b)	258	75	14.79	34.78	0.48	25.86	214	0.27
58	15.29	34.79	0.48	2.4	224	100	14.18	34.85	0.37	26.06	196	0.32
77	14.74	34.78	0.49	2.5b)	214	150	13.11	34.85	0.20	26.28	176	0.42
119	13.52	34.85	0.18	2.7	183	200	12.45	34.84	0.13	26.40	164	0.50
161	12.98	34.85	0.20	2.6	173							
211	12.32	34.83	0.10	2.7	162							

STATION 13

SPENCER F. BAIRD; November 26, 1958; 1206 G.c.t. (zone +6, 0606); 15°42.5'N., 94°56'W.; sounding, 100 fm.; wind, 360°, force 5; temp., 78.5°F. dry, 74.5°F. wet; weather, clear; sea, rough; wire angle, 30°; BT slide No. 13.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	26.46	33.66	4.14	0.45	592	0	26.46	33.66	4.14	21.90	592	0.00
13	26.47	33.68	4.44	0.43	591	10	26.47	33.68	4.38	21.92	591	0.06
17	26.46	33.69	4.05	0.43	590	20	25.80	33.74	3.82	22.17	567	0.12
21	25.26	33.77	3.69	0.64	548	30	17.65	34.72	0.91	25.17	281	0.16
40	16.74	34.79	0.73	2.3	256	50	16.19	34.79	0.65	25.56	244	0.21
77	15.01	34.78	0.46	2.4	219	75	15.05	34.78	0.47	25.80	220	0.27
115	13.72	34.83	0.13	3.6c)	189	100	14.21	34.81	0.28	26.02	200	0.32

a) Surface water very green at this station, extending about 30 miles south.
b) Duplicate values: 0 m., 0.36; 40, 2.4; 77, 2.0 µg. at./l.
c) Duplicate value, 3.2 µg. at./l.

Table 1.--Continued

STATION 14

SPENCER F. BAIRD; November 28, 1958; 1242 G.c.t. (zone +6, 0642); 15°39.5'N., 96°02'W.; sounding, 180 fm.; wind, 360°, force 1; temp., 82.0°F. dry, 74.8°F. wet; weather, clear; sea, moderate; wire angle, 35°; BT slide No. 14.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	25.85	33.84	4.79	0.34	561	0	25.85	33.84	4.79	22.22	562	0.00
8	25.51	33.95	5.64	0.30	543	10	25.40	33.96	5.42	22.45	540	0.06
16	25.13	33.96	4.55	0.55	532	20	25.08	33.96	4.42	25.55	530	0.11
24	25.05	33.96	4.39	0.81a)	529	30	24.80	33.98	3.99	22.65	520	0.16
31	24.76	33.98	3.95	0.73	520	50	20.15	34.45	2.10	24.32	362	0.25
38	24.15	34.05	3.54	0.90	497	75	14.82	34.82	0.36	25.89	212	0.32
44	21.55	34.32	2.72	1.4	407	100	14.25	34.82	0.31	26.02	200	0.38
50	20.15	34.45	2.10	1.7	362	150	13.18	34.85	0.33	26.26	177	0.47
55	19.58	34.49	1.83	1.7	344	200	12.62	34.84	0.30	26.36	168	0.56
68	15.40	34.78	0.40	2.3	227							
81	14.64	34.83	0.35	2.4	207							
96	14.36	34.82	0.31	2.4	202							
133	13.45	34.85	0.32	2.5	182							
172	12.91	34.85	0.35	2.6	172							
215	12.50	34.83	0.27	2.6	166							

Incident solar radiation: daily T 402 g.-cal./$cm.^2$.

Biological Data

Zooplankton: N-C N, o to 261 m., 0544 hr. , (32'34"), 92 ml. T, 87 ml. S.

STATION 15

SPENCER F. BAIRD; November 28, 1958; 2009 G.c.t. (zone +6, 1409); 14°55'N., 95°59'W.; sounding, 2243 fm.; wind, calm; temp., 84.8°F. dry, 78.9°F. wet; weather, clear; sea, moderate; wire angle, 05°; BT slide No. 15.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	26.86	33.84	5.55	0.18	592	0	26.86	33.84	5.55	21.91	592	0.00
19	25.72	33.87	4.90	0.31	555	10	26.43	33.85	5.34	22.06	578	0.06
38	24.38	34.07	3.54	0.88	502	20	25.71	33.87	4.87	22.30	554	0.12
57	23.43	34.18	3.32	1.10	468	30	24.90	33.97	4.03	22.62	524	0.17
66	22.59	34.29	2.78	1.20	436	50	23.83	34.13	3.40	23.06	482	0.27
75	19.37	34.54	1.67	1.8b)	336	75	19.37	34.54	1.67	24.60	336	0.37
84	18.72	34.63	1.46	1.9	312	100	15.20	34.80	0.41	25.78	222	0.44
106	14.78	34.81	0.37	2.4	212	150	13.60	34.82	0.38	26.15	188	0.54
142	13.78	34.82	0.40	2.4	190	200	12.65	34.81	0.16	26.34	170	0.64
195	12.74	34.82	0.18	2.6	172	250	11.90	34.79	0.11	26.46	158	0.72
294	11.28	34.77	0.10	2.8b)	148	300	11.19	34.76	0.10	26.58	146	0.80
390	9.88	34.69	0.09	3.2	130	400	9.69	34.68	0.09	26.78	128	0.95
487	7.90	34.61	0.00	3.4	106	500	7.75	34.61	0.01	27.02	104	1.05
584	6.91	34.58	0.07	3.5	95	600	6.78	34.58	0.07	27.14	94	1.18
682	6.21	34.56	0.07	3.6	88	700	6.09	34.56	0.08	27.21	86	1.28
782	5.60	34.54	0.11	3.6	82	800	5.50	34.54	0.12	27.27	81	1.37
984	4.58	34.55	0.23	4.0	70	1000	(4.52)	(34.55)	(0.23)	(27.40)	(69)	(1.54)

a) Duplicate value, 0.60 µg. at./l.
b) Duplicate values: 75 m., 1.7; 294, 2.7 µg. at./l.

Table 1.--Continued

STATION 15 (con.)

Incident solar radiation: daily T 402 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1250-1310 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
0°	5	272	5		
0°	10	82	10	5-10	0.240
0°	20	62.5	20	10-20	0.258
0°	30	2.0	30	20-30	0.112

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis			
		Lab. Incubator mg. C/m.^{3}/hr.		Deck Incubator	
m.	mg./m.^{3}	at 1,000 ft.-candles		mg. C/m.^{3}/day	
		Light	Dark	Light	Dark
0	1.3	15.3 16.8	0.435	161.1	3.10
10	1.6	15.3	-	-	-
25	1.3	7.86	-	-	-
50	0.24	1.94	-	-	-
75	0.17	1.49	-	-	-
100	0.048	0.246	-	-	-
150	0.044	0.148	-	-	-
200	0.049	0.098	0.082	-	-

Water column: 61 mg./m.^{2} 528 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 248 m., 1100 hr. (30'10"), 151 ml. T, 151 ml. S.[a)]

STATION 15A

SPENCER F. BAIRD; November 28-29, 1958; zone +6, 2350-0146; 14°24'N., 95°30'W.; sounding, 2150 fm.

Incident solar radiation: daily T 402 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, H at 0 m., 0130 hr. (16'26"), 705 ml. T, 705 ml. S.

a) Surface water very green near this station (see Station 11).

Table 1.--Continued

STATION 16

SPENCER F. BAIRD; November 29, 1958; 1120 G.c.t. (zone +6, 0520); 14°18'N., 96°03.5'W.; sounding, 1840 fm.; wind, 180°, force 1; temp., 82.5°F. dry, 77.5°F. wet; weather, clear; sea, slight; wire angle, 44°; BT slide No. 16.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	26.21	33.83	5.27		572	0	26.21	33.83	5.27	22.11	572	0.00
9	26.33r	33.82	5.29		568	10	26.00	33.82	5.28	22.17	566	0.06
17	25.72	33.90	4.90		552	20	25.59	33.92	4.79	22.36	548	0.11
25	25.34	33.93	4.55		540	30	25.05	33.97	4.23	22.56	529	0.17
33	24.86	34.00	4.00		521	50	19.04	34.59	0.97	24.72	324	0.25
41	22.00a)	34.37	2.38		415	75	15.20	34.78	0.35	25.78	223	0.32
47	20.31	34.49	1.77		362	100	14.00	34.81	0.22	26.06	196	0.37
54	17.65	34.70	0.30		282	150	12.78	34.84	0.24	26.33	170	0.47
61	16.40	34.74	0.12		252							
74	15.27	34.78	0.36		224							
94	14.24	34.79	0.18		202							
113	13.58	34.84	0.32		185							
158	12.64	34.83	0.23		168							
318p	10.56	34.72	0.13		-							
382p	9.14	34.64	0.08		-							

Incident solar radiation: daily T 423 g.-cal./cm.^{2} .

STATION 17

SPENCER F. BAIRD; November 29, 1958; zone +6, 1028-1045; 13°39'N., 95°59'W.; sounding, 2000 fm.; wind, 050°, force 7; temp., 82.7°F. dry, 77.2°F. wet; weather, 02; clouds, amt., 0; sea, 6; swell, 050°, 15 ft., 5 sec.; BT slide No. 17.

Incident solar radiation: daily T 423 g.-cal./cm.^{2} .b)

STATION 18

SPENCER F. BAIRD; November 30, 1958; 0039 G.c.t. (zone +6, 1839, XI-29); 13°45'N., 97°09'W.; sounding, 1850 fm.; wind, 020°, force 6; temp., 85.5°F. dry, 78.1°F. wet; weather, clear; sea, very rough; wire angle, 40°; BT slide No. 18.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	29.16	33.28	4.45	0.055	704	0	29.16	33.28	4.45	20.74	704	0.00
8	29.16	33.27	4.40	0.090	704	10	29.16	33.27	4.40	20.74	704	0.07
17	29.16	33.25	4.32	0.062	705	20	29.12	33.25	4.31	20.74	704	0.14
25	28.47	33.35	4.36	0.11	676	30	24.40	34.04	3.04	22.82	505	0.20
33	23.18	34.22	2.51	1.1	458	50	19.20	34.65	0.93	24.72	323	0.28
44	20.06	34.60	1.22	1.8	348	75	15.83	34.78	0.36	25.64	236	0.36
52	17.44	34.72	0.49	2.2	276	100	14.66	34.79	0.15	25.90	211	0.41
64	16.59	34.78	0.48	2.3	252	150	12.93	34.82		26.29	174	0.51
83	15.31	34.78	0.23	2.4	226	200	12.08	34.84		26.46	158	0.60
123	13.84	34.82	0.10	2.6	192	250	11.38	34.82	0.09	26.58	146	0.67
157	12.76	34.82	0.73r	-	171	300	10.61	34.75	0.08	26.67	138	0.75
224	11.77	34.84	0.10	2.7	151							
291	10.76	34.76	0.08	2.9	140							
359	9.56	34.67	0.08	3.1	126							

a) Mean value of 21.91° and 22.08°C.
b) All other work omitted at this station because of weather.

Table 1.--Continued

STATION 18 (con.)

Incident solar radiation: daily T 423 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 182 m., 1725 hr. (32'00"), 121 ml. T, 121 ml. S.

STATION 19

SPENCER F. BAIRD; November 30, 1958; 0714 G.c.t. (zone +6, 0114); 14°21'N., 97°00.5'W.; sounding, 1080 fm.; wind, 020°, force 5; temp., 86.0°F. dry, 79.0°F. wet; weather, clear; sea, rough; wire angle, 36°; BT slide No. 19.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	28.36	33.53	4.50	0.11	659	0	28.36	33.53	4.50	21.20	659	0.00
8	28.32	33.53	4.47	0.10	658	10	28.30	33.53	4.47	21.21	658	0.07
16	27.48	33.68	4.87	0.05	622	20	27.00	33.65	4.62	21.72	610	0.13
24	26.80	33.64	4.50	0.22	604	30	26.50	33.65	4.17	21.88	594	0.19
31	26.44	33.65	4.04	0.28	593	50	26.17	33.68	4.03	22.00	582	0.31
42	26.30	33.67	3.78	-	587	75	16.45	34.76	0.56	25.48	251	0.41
51	26.14	33.68	4.07	0.42	582	100	14.64	34.79	0.20	25.91	210	0.47
61	20.71	34.35	1.79	1.6	382	150	13.23	34.84	0.21	26.24	179	0.57
79	15.91	34.79	0.42	2.3	237	200	12.31	34.85	0.13	26.44	160	0.66
114	14.14	34.79	0.18	2.6a)	200	250	11.55	34.82	0.08	26.56	149	0.74
143	13.39	34.83	0.22	2.1a)	182	300	10.72	34.74	0.08	26.65	140	0.82
202	12.26	34.85	0.11	2.6	160	400	9.10	34.64	0.10	26.84	122	0.95
262	11.34	34.80	0.08	2.8	147	500	(7.61)	(34.58)		(27.03)	(104)	(1.07)
323	10.32	34.71	0.08	2.9	136							
454	8.21	34.60	0.12	3.3	112							

Incident solar radiation: daily T 423 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 247 m., 2345 hr. (33'29"), 300 ml. T, 295 ml. S; H at 0 m., 0020 hr. (15'20"), 662 ml. T, 662 ml. S.

a) Duplicate values: 114 m., 2.5; 143, 2.6 µg. at./l.

Table 1.--Continued

STATION 20

SPENCER F. BAIRD; November 30, 1958; 1953, 2013 G.c.t. (zone +6, 1353, 1413); 15°07'N., 96°55.5'W.; sounding, 2090 fm.; wind, 060°, force 3; temp., 85.8°F. dry, 79.2°F. wet; weather, partly cloudy; sea, moderate; wire angle, 40°, 05°;[a] BT slide No. 20.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_{T} 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_{T} 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	27.44	33.78	5.08	0.11	614	0	27.44	33.78	5.08	21.68	614	0.00
30	25.40	33.95	4.35	0.36b)	540	10	26.40	33.88	4.69	22.08	575	0.06
45	25.28	33.95	4.39	0.48	537	20	25.78	33.93	4.47	22.32	553	0.12
52	25.15	33.99	4.19	0.50	530	30	25.40	33.95	4.35	22.45	540	0.17
60	25.08	33.98	4.10	0.56	529	50	25.18	33.99	4.23	22.54	531	0.28
						75	23.55	34.17	3.36	23.16	472	0.40
86	18.50	34.56	1.18	1.8	313	100	15.48	34.80	0.30	25.72	228	0.49
101	15.44	34.80	0.29	2.3	227	150	13.66	34.83	0.09	26.14	188	0.60
121	14.38	34.82	0.13	2.5	203	200	13.02	34.87	0.10	26.31	173	0.69
150	13.66	34.83	0.09	2.6	188	250	12.55	34.84	0.08	26.38	166	0.78
200	13.02	34.87	0.10	2.7b)	173	300	11.92	34.80	0.07	26.47	157	0.86
292	12.06	34.81	0.07	2.7	159	400	9.39	34.68	0.08	26.83	123	1.01
385	9.76	34.70	0.09	3.0	127	500	7.27	34.60	0.06	27.09	98	1.12
478	7.60	34.61	0.07	3.4	102	600	6.28	34.60	0.07	27.22	86	1.23
574	6.46	34.60	0.06	3.5b)	88	700	5.82	34.59	0.08	27.27	81	1.32
768	5.59	34.58	0.10	3.6	79	800	5.48	34.58	0.11	27.31	78	1.41
965	4.68	34.56	0.20	3.7	70	1000	(4.57)	(34.56)	(0.22)	(27.40)	(69)	(1.57)

Incident solar radiation: daily T 381 g.-cal./$cm.^2$.

Submarine irradiance and attenuation coefficients at 1235-1305 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector µa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
-	10	79.5	10		
-	20	18.1	20	10-20	0.148
-	30	3.0	30	20-30	0.180

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./$m.^3$	Photosynthesis: Lab. Incubator mg. C/$m.^3$/hr. at 1000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/$m.^3$/day Light	Deck Incubator Dark
0	0.54	5.31	0.668	38.4	9.01
10	1.04	11.9	-	-	-
25	1.9	7.56	-	-	-
50	1.3	11.9	-	-	-
75	0.93	8.61	-	-	-
100	0.31	0.701	-	-	-
150	0.050	0.055	-	-	-
200	0.063	0.080	0.090	-	-

Water column: 120 mg./$m.^2$ 830 mg. C/$m.^2$/hr.

Phytoplankton haul taken.

a) Vessel steamed while on station.
b) Duplicate values: 30 m., 0.46; 200, 2.6; 574, 3.6 µg. at./l.

STATION 21

SPENCER F. BAIRD; December 1, 1958; 0021 G.c.t. (zone +6, 1821, XI-30); 15°39.5'N., 96°53'W.; sounding, 110 fm.; wind, 260°, force 2; temp., 85.0°F. dry, 80.0°F. wet; weather, partly cloudy; sea, moderate; wire angle, 00°; BT slide No. 21.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	27.02	33.86	5.47	0.0	595	0	27.02	33.86	5.47	21.88	595	0.00
9	25.62	33.87	4.67	0.34	552	10	25.60	33.87	4.63	22.33	551	0.06
19	25.32	33.91	4.30	0.54	540	20	25.31	33.91	4.27	22.45	540	0.11
29	25.05	33.88	3.80	0.60	535	30	25.01	33.88	3.77	22.51	534	0.17
38	24.51	33.96	3.55	0.72	514	50	23.98	34.06	3.19	22.96	492	0.27
48	24.15	34.03	3.29	0.86	499	75	17.48	34.71	0.86	25.20	278	0.36
67	18.42	34.68	1.30	1.8	302	100	14.44	34.83	0.36	25.98	204	0.43
86	15.58	34.79	0.40	2.4	230	150	13.57	34.85	0.18	26.18	184	0.52
100	14.44	34.83	0.35	2.4	204							
124	13.98	34.83	0.27	2.5a)	193							
147	13.62	34.85	0.20	2.5	186							
170	13.13	34.88	0.17	2.5	174							

Incident solar radiation: daily T 381 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 109 m., 1845 hr. (15'03"), 255 ml. T, 188 ml. S.

STATION 22

SPENCER F. BAIRD; November 30-December 1, 1958; zone +6, 2310-0212; 15°31'N., 97°43.5'W.; sounding, 2100 fm.; wind, 060°, force 2; temp., 87.0°F. dry, 79.0°F. wet; weather, 02; clouds, 2, amt., 3; sea, 2; swell, 060°, ht., 2-3 ft.; BT slide No. 22.

Incident solar radiation: daily T 381 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 266 m., 2325 hr. (31'45"), 236 ml. T, 202 ml. S; H at 0 m., 0010 hr. (15'30"), 408 ml. T, 408 ml. S.

a) Duplicate value, 2.4 μg. at./l.

Table 1.--Continued

STATION 23

SPENCER F. BAIRD; December 1, 1958; 1957 G.c.t. (zone +6, 1357); 15°36'N., 99°23.5'W.; sounding, 1980 fm.; wind, 320°, force missing; temp., 86.8°F. dry, 79.9°F. wet; weather, partly cloudy; sea, slight; wire angle, 10°; BT slide No. 23.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	30.00	33.34	4.36	0.00a)	726	0	30.00	33.34	4.36	20.51	726	0.00
28	29.35	33.49	4.42	0.06	694	10	29.89	33.37	4.37	20.57	720	0.07
38	28.58	33.66	4.39	0.14	657	20	29.66	33.43	4.40	20.68	710	0.14
48	27.63	34.00	4.20	0.21	604	30	29.20	33.52	4.42	20.91	688	0.21
58	25.67	34.20	3.76	0.49	530	50	27.40	34.03	4.14	21.88	594	0.34
67	20.54	34.54	1.15	1.8	364	75	18.45	34.64	0.39	24.91	306	0.46
76	18.26	34.65	0.35	2.4	300	100	15.60	34.73	0.09	25.65	235	0.52
99	15.67	34.72	0.09	2.6	238	150	13.19	34.82	0.08	26.24	179	0.63
118	14.46	34.80	0.08	2.6	206	200	12.27	34.85	0.12	26.44	160	0.71
144	13.37	34.81	0.08	2.8	184	250	11.73	34.81	0.09	26.52	153	0.79
193	12.34	34.85	0.12	2.8	161	300	11.02	34.76	0.07	26.60	145	0.87
284	11.32	34.78	0.08	2.9	148	400	9.38	34.63	0.08	26.79	126	1.02
376	9.72	34.65	0.06	3.1	130	500	8.08	34.58	0.08	26.95	112	1.14
468	8.43	34.60	0.08	3.3	115	600	7.11	34.55	0.09	27.08	100	1.26
560	7.44	34.55	0.08	3.4	105	700	6.32	34.56	0.09	27.18	90	1.36
751	5.94	34.56	0.09	3.5	84	800	5.63	34.56	0.09	27.27	81	1.46
946	4.86	34.56	0.13	3.7a)	72	1000	(4.68)	(34.56)		(27.39)	(70)	(1.63)

Incident solar radiation: daily T 365 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1230-1330 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector μa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0°	5	708	5		
7°	10	670	10	5-10	0.011
7°	20	393	20	10-20	0.0533
5°	30	309	30	20-30	0.0241
3°	40	226	40	30-40	0.0312
0°	50	106	50	40-50	0.0757
0°	60	36.6	60	50-60	0.106
3°	70	15.3	70	60-70	0.0871
3°	80	7.0	80	70-80	0.0783
3°	90	3.69	89	80-89	0.0711

a) Duplicate values: 0 m., 0.06; 946, 3.6 μg. at./l.

STATION 23 (con.)

Biological Data

Phytoplankton:

Photosynthesis

Depth m.	Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles		Deck Incubator mg. C/m.^{3}/day	
	Light	Dark	Light	Dark
0	0.836	0.212	3.48 6.91	-
10	0.468	-	-	-
25	1.38	-	-	-
50	1.88	-	-	-
75	0.119	-	-	-
100	0.073	-	-	-
150	0.050	-	-	-
200	0.032	0.041	-	-

Water column: 91.4 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 325 m., 1110 hr. (31'40"), 77 ml. T, 65 ml. S.

STATION 24

SPENCER F. BAIRD; December 1-2, 1958; zone +6, 2300-0145; 16°01.5'N., 100°54'W.; sounding, 1940 fm.; wind, 270°, force 2; temp., 87.0°F. dry, 79.0°F. wet; weather, 01; clouds, amt., 0; sea, 1; swell, 270°, ht., 3 ft.; BT slide No. 24.

Incident solar radiation: daily T 365 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 288 m., 2300 hr. (31'42"), 70 ml. T, 70 ml. S; H at 0 m., 2345 hr. (15'30"), 266 ml. T, 266 ml. S.

STATION 25

SPENCER F. BAIRD; December 2, 1958; 1916 G.c.t. (zone +6, 1316); 16°58.5'N., 102°28'W.; sounding, 2420 fm.; wind, 280°, force 1; temp., 86.0°F. dry, 79.3°F. wet; weather, partly cloudy; sea, slight; wire angle, 08°; BT slide No. 25.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	29.10	33.14	4.23	0.14	712	0	29.10	33.14	4.23	20.66	712	0.00
9	28.77	33.15	4.20	0.10	700	10	28.77	33.16	4.19	20.79	699	0.07
19	28.67	33.27	4.11	0.14	688	20	28.67	33.28	4.11	20.92	688	0.14
29	28.60	33.45	4.16	0.16	674	30	28.60	33.45	4.17	21.06	673	0.21
38	27.88	33.86	4.07	0.23	621	50	24.60	34.33	3.44	22.98	490	0.32
48	25.02	34.29	3.61	0.58	504	75	17.83	34.60	0.55	25.03	294	0.42
57	22.41	34.46	2.38	1.3	420	100	15.08	34.72	0.08	25.76	225	0.49
76	17.80	34.60	0.65	2.4a)	294	150	12.94	(34.82)	0.09	(26.28)	(175)	(0.59)
100	15.08	34.72	0.08	2.6a)	225	200	12.08	(34.80)	0.10	(26.44)	(160)	(0.68)
146	13.06	34.82	0.08	2.7	177	250	11.50	(34.77)	0.10	(26.52)	(152)	(0.76)
195	12.16	-	0.10	-	-	300	10.87	34.73	0.10	26.61	144	(0.83)
286	11.07	34.74	0.09	3.0a)	146	400	9.40	34.64	0.09	26.80	126	(0.98)
382	9.66	34.65	0.10	3.2	130	500	8.13	34.63	0.09	26.98	108	(1.10)
474	8.45	34.61	0.09	3.3	112	600	7.00	34.57	0.08	27.10	97	(1.21)
666	6.34	34.54	0.08	3.5	90							

a) Duplicate values: 76 m., 2.3; 100, 2.7; 286, 2.9 µg. at./l.

STATION 25 (con.)

Incident solar radiation: daily T 336 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.075
10	0.066
25	0.048
50	0.53
100	0.16
150	0.096
200	0.019
250	0.029

Water column: 28 mg./m.^{2} .

Phytoplankton haul taken.

Zooplankton: N-C N, o to 267 m., 1109 hr. (32'30"), 52 ml. T, 52 ml. S.

STATION 26

SPENCER F. BAIRD; December 2-3, 1958; zone +6, 2300-0045, XII-3; 17°54'N., 104°06'W.; sounding, 2360 fm.; wind, 270°, force 2; temp., 86.0°F. dry, 80.0°F. wet; weather, 02; clouds, amt., 0; sea, 1; swell, 270°, ht., 2 ft.; BT slide No. 26.

Incident solar radiation: daily T 336 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 319 m., 2300 hr. (31'45"), 54 ml. T, 54 ml. S.

STATION 27

SPENCER F. BAIRD; December 5, 1958; zone +7, 1837-2000; 25°54.5'N., 113°07.5'W.; sounding, 73 fm.; wind, 300°, force 3; temp., 72.6°F. dry, 68.5°F. wet; weather, 02; clouds, 3, amt., 3; sea, 2; swell, 300°, ht., 3 ft.; BT slide No. 27.

Incident solar radiation: daily T 281 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 93 m., 1845 hr. (12'20"), 189 ml. T, 15 ml. S.

STATION 28

SPENCER F. BAIRD; December 5, 1958; zone +7, 2130-2201; 25°35'N., 113°25'W.; sounding, 85 fm.; wind, 300°, force 4; temp., missing; weather, 02; clouds, 3, amt., 3; sea, 3; swell, 300°, ht., 4 ft.; BT slide No. 28.

Incident solar radiation: daily T 281 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 119 m., 2130 hr. (15'00"), 55 ml. T, 3 ml. S.

STATION 29

SPENCER F. BAIRD; December 5, 1958; zone +7, 2238-2301; 25°39'N., 113°31.5'W.; sounding, 370 fm.; wind, 300°, force 4; temp., 72.0°F. dry, 68.0°F. wet; weather, 02; clouds, 3, amt., 3; sea, 3; swell, 300°, ht., 4 ft.; BT slide No. 29.

Incident solar radiation: daily T 281 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 124 m., 2245 hr. (15'00"), 41 ml. T, 3 ml. S.

STATION 30

SPENCER F. BAIRD; December 6, 1958; zone +7, 0012-0030; 25°34'N., 113°45.5'W.; sounding, 2000 fm.; wind, 320°, force 4; temp., 72.0°F. dry, 67.5°F. wet; weather, 02; clouds, 3, amt., 3; sea, 3; swell, 320°, ht., 3-5 ft.; BT slide No. 30.

Incident solar radiation: daily T 240 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 123 m., 0015 hr. (15'00"), 126 ml. T, 65 ml. S.

STATION 31

SPENCER F. BAIRD; December 6, 1958; zone +7, 0530-1359; 25°36'N., 113°18'W.; sounding, 347 fm.

Incident solar radiation: daily T 240 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth	Photosynthesis In Situ	
m.	mg. C/m.^{3}/day	
	Light	Dark
0	0.742	0.402
10	1.84	-
25	1.51	-
50	2.12	-
100	1.95	-
150	0.212	-
200	0.127	-
	0.127	0.0848

Water column: 153.0 mg. C/m.^{2}/day

Phytoplankton haul taken.

Table 2. Station data. Cruise TO-59-1

STATION 1

STRANGER; January 16-17, 1959; zone +7, 2300-0222; 28°38'N., 115°37'W.; sounding, 365 fm.; wind, 310°, force 4; temp., 62.0°F. dry, 60.3°F. wet; weather, 02; clouds, amt., 0; sea, 2; swell, 320°, 3 ft., 5 sec.; BT slide No. 1.

Incident solar radiation: daily T 330 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 144 m., 2315 hr. (14'), 174 ml. T, 105 ml. S.
C N (C-B), H at 152 m., 2351 hr. (17'), 79.0 ml. T, 8.2 ml. S; H at 71 m., 0028 hr. (24'), 103.5 ml. T, 14.8 ml. S; H at 28 m., 0059 hr. (14'), 93.9 ml. T, 93.9 ml. S.

Micronekton: o to 99 m., 0122 hr. (48'), 543 ml. T w/o jellies.

STATION 2

STRANGER; January 17, 1959; 1930 G.c.t. (zone +7, 1230); 27°12'N., 114°40'W.; sounding, 340 fm.; wind, 310°, force 1; temp., 72.1°F. dry, 66.2°F. wet; weather, partly cloudy; sea, slight; wire angle, 14°; BT slide No. 2.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	19.5	34.23	-	-	362	0	19.5	34.23		24.31	362	0.00
10	19.48	34.21	4.55	0.49	362	10	19.48	34.21	4.55	24.31	362	0.04
20	19.46	34.23	4.37	0.47	360	20	19.46	34.23	4.37	24.33	360	0.07
30	19.32	34.22	4.19	0.50	357	30	19.32	34.22	4.19	24.37	357	0.11
39	17.61	33.96	4.12	0.68a)	336	50	16.63	33.92	3.85	24.80	316	0.18
55	16.18	33.91	3.71	1.1	309	75	14.19	33.90	3.26	25.32	266	0.25
70	14.42	33.83	3.54	1.3	276	100	13.92	34.14	2.48	25.56	243	0.31
84	13.91	33.99	2.89	1.9	254							
108	13.70	34.16	2.25	2.2	238							

Incident solar radiation: daily T 360 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1521 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector µa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0-5°	5	423	5		
0-5°	10	325.7	10	5-10	0.0520
0-5°	20	160	20	10-20	0.0712
0-5°	30	72.3	30	20-30	0.0794
0-5°	40	33.5	40	30-40	0.0769
0-5°	50	15.4	50	40-50	0.0778
0-5°	60	4.79	60	50-60	0.117

a) Duplicate value, 0.74 µg. at./l.

Table 2.--Continued

STATION 2 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Dark
0	0.26	1.34	-
10	0.22	-	-
25	0.26	0.086	-
50	0.47	0.105	-
75	0.15	-	-
100	0.068	0.0096	-
150	0.073	0.0048	0.214

Water column: 26 mg./m.^{2} 21.9 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 131 m., 1342 hr. (14'), 49 ml. T, 45 ml. S.
C N (C-B), H at 133 m., 1406 hr. (16'), 21.9 ml. T, 21.9 ml. S; H at 23 m., 1435 hr. (14'), 114.6 ml. T, 97.0 ml. S; H at 11 m., 1457 hr. (15'), 57.3 ml. T, 57.3 ml. S.

STATION 3

STRANGER; January 17-18, 1959; zone +7, 2300-0144; 26°30'N., 113°37'W.; sounding, 50 fm.; wind, 300°, force 4; temp., 68.0°F. dry, 62.0°F. wet; weather, 01; clouds, amt., 0; sea, 1; swell, 300°, 3 ft., 5 sec.; BT slide No. 3.

Incident solar radiation: daily T 360 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, H at 0 m., 2317 hr. (15'), 128 ml. T, 10 ml. S.
C N (C-B), H at 67 m., 2347 hr. (15'), 228.5 ml. T, 228.5 ml. S; H at 19 m., 0010 hr. (14'), 178.9 ml. T, 178.9 ml. S.

Micronekton: o to 90 m., 0055 hr. (47'), 102 ml. T w/o jellies.

STATION 4

STRANGER; January 18, 1959; 2002 G.c.t. (zone +7, 1302); 25°05'N., 112°55'W.; sounding, 650 fm.; wind, 260°, force 2; temp., 70.5°F. dry, 66.4°F. wet; weather, partly cloudy; sea, moderate; wire angle, 12°; BT slide No. 4.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	22.0	34.33	-		418	0	22.0	34.33		23.73	418	0.00
30	21.06	34.36	4.85	0.36a)	392	10	21.43	34.35		23.90	401	0.04
64	19.04	34.22	4.37	0.78	350	20	21.19	34.36		23.98	394	0.08
73	19.52	34.00	4.12	0.93	330	30	21.06	34.36	4.85	24.00	392	0.12
98	14.93	34.05	2.59	1.7	271	50	20.65	34.33	4.73	24.10	382	0.20
124	13.30	34.14	1.91	2.3	232	75	17.38	34.00	4.04	24.68	327	0.29
138	12.71	34.28	1.29	2.6	210	100	14.88	34.05	2.58	25.28	270	0.36
162	12.58	34.31	0.72	2.8	205	150	12.65	34.30	1.00	25.94	207	0.48
192	11.35	34.36	0.86	2.8	180	200	11.20	34.40	0.75	26.30	173	0.58
226	10.74	34.51	0.42	3.1a)	158	250	10.43	34.51	0.38	26.52	153	0.66
304	9.74	34.50	0.29	3.2	142	300	9.80	34.50	0.29	26.62	143	0.74
354	9.08	34.47	0.28	3.2	135	400	8.69	34.46	0.25	26.76	129	0.88
452	8.26	34.45	0.17	3.2a)	124							

a) Duplicate values: 30 m., 0.54; 226, 3.0; 452, 3.3 µg. at./l.

Table 2.--Continued

STATION 4 (con.)

Incident solar radiation: daily T 380 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1425 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
0-5°	5	695	5		
7°	10	569	10	5-10	0.0400
8°	20	412	19	10-19	0.0359
12°	30	247.2	29	19-29	0.0512
21°	40	157.3	38	29-38	0.0503
18°	50	93.5	47	38-47	0.0576
20°	60	51.2	56	47-56	0.0669
30°	70	24.4	61	56-61	0.148
30°	80	11.0	69	61-69	0.0995

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis	
		Lab. Incubator mg. C/m.^{3}/hr.	
m.	mg./m.^{3}	at 1,000 ft.-candles	
		Light	Dark
0	0.084	0.351	0.0062
		0.302	
10	0.061	0.0185	-
25	0.13	0.0288	-
50	0.20	0.0368	-
75	0.30	0.0226	-
100	0.099	0.0144	-
150	0.079	0.0103	0.0123
Water column:	18 mg./m.^{2}	5.0 mg. C/m.^{2}/hr.	

Phytoplankton haul taken.

Zooplankton: N-C N, o to 126 m., 1407 hr. (15'), 38 ml. T, 14 ml. S.
C N (C-B), H at 205 m., 1528 hr. (16'), 81.2 ml. T, 81.2 ml. S; H at 97 m., 1600 hr. (15'), 11.9 ml. T, 11.9 ml. S; H at 33 m., 1625 hr. (15'), 49.7 ml. T, 49.7 ml. S.

STATION 5

STRANGER; January 18-19, 1959; zone +7, 2300-0126; 24°18'N., 112°01'W.; sounding, 81 fm.; wind, 270°, force 3; temp., 71.5°F. dry, 67.0°F. wet; weather, 02; clouds, amt., 1; sea, 1; swell, 290°, 3 ft., 4 sec.; BT slide No. 5.

Incident solar radiation: daily T 383 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, H at 0 m., 2314 hr. (15'), 51 ml. T, 36 ml. S.
C N (C-B), H at 47 m., 2344 hr. (15'), 23.2 ml. T, 23.2 ml. S; H at 18 m., 0008 hr. (29'), 16.9 ml. T, 16.9 ml. S.

Micronekton: o to 81 m., 0035 hr. (40'), 355 ml. T w/o jellies.

Table 2.--Continued

STATION 6

STRANGER; January 19, 1959; 1745 G.c.t. (zone +7, 1045); 23°13.5'N., 110°41'W.; sounding, 470 fm.; wind, direction missing, force 1; temp., 71.5°F. dry, 67.8°F. wet; weather, partly cloudy; sea, slight; wire angle, 06°; BT slide No. 6.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	23.2	34.78a)	-	-	418	0	23.2	34.78		23.73	418	0.00
16	23.00	34.87b)	5.04	0.50	-	10	23.00	34.76		23.77	414	0.04
50	18.82	34.33	3.61	1.2	337	20	23.00	34.76	5.03	23.77	414	0.08
60	17.60	34.30	3.19	1.4	310	30	22.80	34.74	4.98	23.81	410	0.12
70	16.40	34.32	2.30	1.8	282	50	18.82	34.33	3.61	24.58	337	0.20
91	14.84	34.32	1.38	2.3	250	75	16.05	34.32	2.08	25.24	274	0.28
111	13.75	34.42	0.98	2.5	220	100	14.29	34.37	1.18	25.66	234	0.34
167	13.20	34.70	0.35	3.0	188	150	13.39	34.63	0.53	26.05	197	0.45
196	11.98	34.70	0.20	3.0	165	200	11.92	34.70	0.20	26.40	164	0.54
230	11.61c)	34.69	0.19	2.3d)	160	250	11.31	34.68	0.17	26.49	155	0.62
309	10.34	34.64	0.08	3.1	142	300	10.47	34.65	0.08	26.62	143	0.70
357	10.02	34.60	0.11	3.1	140	400	9.41	34.59	0.12	26.75	130	0.84
455	8.60	34.58	0.13	3.3	119	500	7.90	34.53	0.12	26.95	112	0.97
544	7.21	34.49	0.12	3.5	106	600	6.80	34.47	0.11	27.05	102	1.08
651	6.43	34.46	0.11	3.5	98	700	6.21	34.48	0.11	27.13	94	1.19
789	5.81	34.51	0.12	3.6	87	800	(5.75)	(34.51)	(0.12)	(27.22)	(86)	(1.28)

Incident solar radiation: daily T 331 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1330 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
0°	30	151.2	30		
7.5°	40	100.5	39	30-39	0.0403
19°	50	57.0	47	39-47	0.0764
19°	60	24.4	57	47-57	0.0849
24°	70	11.4	64	57-64	0.108
30°	80	5.86	69	64-69	0.133

a) Loose bottle cap; value falls on property curve.
b) Loose bottle cap; value does not fall on property curve.
c) Mean value of 11.66° and 11.55°C.
d) Duplicate value, 3.0 µg. at./l.

Table 2.--Continued

STATION 6 (con.)

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis			
		Lab. Incubator mg. C/m.^{3}/hr.		Deck Incubator	
m.	mg./m.^{3}	at 1,000 ft.-candles		mg. C/m.^{3}/day	
		Light	Dark	Light	Dark
0	0.14	0.222	0.011	3.25	0.11
10	0.12	0.0345	-	-	-
25	0.15	0.0862	-	-	-
50	1.66	0.144	-	-	-
75	0.18	0.043	-	-	-
100	0.103	0.0129	0.0065	-	-
150	0.061	0.0086	-	-	-
200	0.050	-	-	-	-

Water column: 41 mg./m.^{2} 8.0 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 208 m., 1228 hr. (32'), 25 ml. T, 18 ml. S.
C N (C-B), H at 120 m., 1400 hr. (15'), 12.6 ml. T, 12.6 ml. S; H at 65 m., 1424 hr. (15'), 97.6 ml. T, 10.8 ml. S; H at 25 m., 1445 hr. (15'), 9.6 ml. T, 9.6 ml. S.

STATION 7

STRANGER; January 19-20, 1959; zone +7, 2200-0115; 22°25'N., 109°40'W.; sounding, 1600 fm.; wind, 270°, force 4; temp., 74.0°F. dry, 68.0°F. wet; weather, 02; clouds, amt., 6; sea, 1; swell, 270°, 2 ft., 5 sec.; BT slide No. 7.

Incident solar radiation: daily T 332 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 262 m., 2244 hr. (34'), 88 ml. T, 88 ml. S; H at 0 m., 2244 hr. (14'), 45 ml. T, 45 ml. S.
C N (C-B), H at 123 m., 2315 hr. (15'), 55.1 ml. T, 55.1 ml. S; H at 80 m., 2340 hr. (15'), 58.2 ml. T, 58.2 ml. S; H at 26 m., 0003 hr. (15'), 9.5 ml. T, 9.5 ml. S.

Micronekton: o to 86 m., 0025 hr. (48'), 162 ml. T w/o jellies.

STATION 8

STRANGER; January 20, 1959; 1747 G.c.t. (zone +7, 1047); 21°17'N., 108°16'W.; sounding, 1749 fm.; wind, 250°, force 1; temp., 76.0°F. dry, 69.9°F. wet; weather, cloudy; sea, slight; wire angle, 02°; BT slide No. 8.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	24.4	34.78	-	-	451	0	24.4	34.78		23.38	451	0.00
26	24.22	34.76	3.20	0.51	448	10	24.32	34.77		23.39	450	0.04
76	22.03	34.80	3.64	0.92	384	20	24.26	34.76		23.41	448	0.09
81	19.50	34.40	2.86	1.2	349	30	24.18	34.76	3.21	23.43	446	0.13
86	19.40	34.61a)	1.93	1.8	331	50	23.12	34.78	3.43	23.75	416	0.22
101	18.04	34.78	1.27	2.3	286	75	23.05	34.79	3.46	23.78	413	0.32
125	15.46	34.70	0.68	2.7	234	100	18.18	34.77	1.32	25.07	290	0.42
165	13.32	34.79	0.13	2.9	184	150	14.10	34.75	0.32	26.00	202	0.54
194	12.49	34.96u	0.05	3.1	-	200	12.32	34.81	0.06	26.40	164	0.63
229	11.86	34.81	0.06	3.1	155	250	11.56	34.80	0.08	26.54	151	0.71
308	10.65	34.76	0.11	3.1	138	300	10.79	34.77	0.11	26.66	139	0.79
358	9.80	34.64	0.11	3.2	133	400	9.18	34.58	0.15	26.79	127	0.92
457	8.32	34.52	0.19	3.3	119	500	7.78	34.50	0.21	26.95	112	1.05
546	7.22	34.50	0.21	3.5	105	600	6.75	34.51	0.21	27.09	98	1.16
654	6.30	34.52	0.22	3.6	92	700	5.97	34.53	0.24	27.21	87	1.26
791	5.38	34.54	0.30	3.4	79	800	5.32	34.54	0.30	27.29	79	1.35
925	4.72	34.52	0.33	3.7	73	1000	4.40	34.52		27.39	70	1.52
1038	4.24	34.52	-	3.9	68							
1089	4.11	34.54	-	3.6	66							

Incident solar radiation: daily T 183 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1300 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
0°	10	304	10		
3°	20	210	20	10-20	0.0370
6°	30	148	30	20-30	0.0350
7°	40	93.5	40	30-40	0.0459
7°	50	57.4	50	40-50	0.0488
7°	60	33.0	60	50-60	0.0554
7°	70	16.9	70	60-70	0.0669
16°	80	8.90	77	70-77	0.0916
22°	90	5.03	84	77-84	0.0816

a) Loose bottle cap; value falls on property curve.

Table 2.--Continued

STATION 8 (con.)

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis			
		Lab. Incubator mg. C/m.^{3}/hr.		Deck Incubator	
m.	mg./m.^{3}	at 1,000 ft.-candles		mg. C/m.^{3}/day	
		Light	Dark	Light	Dark
0	0.16	1.59	0.044	7.91	0.234
10	0.11	0.104	-	-	-
25	0.11	0.100	-	-	-
50	0.28	0.132	-	-	-
75	0.35	- a)	-	-	-
100	0.059	0.016	-	-	-
150	0.049	0.024	0.016	-	-
200	0.04	-	-	-	-

Water column: 22 mg./m.^{2} 15.2 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 287 m., 1153 hr. (32'), 37 ml. T, 37 ml. S.
C N (C-B), H at 314 m., 1348 hr. (16'), 19.2 ml. T, 19.2 ml. S; H at 81 m., 1420 hr. (14'), 90.4 ml. T, 90.4 ml. S; H at 25 m., 1441 hr. (15'), 102.0 ml. T, 102.0 ml. S.

STATION 9

STRANGER; January 20-21, 1959; zone +7, 2130-0125; 20°32'N., 107°17'W.; sounding, 1750 fm.; wind, 180°, force 2; temp., 76.3°F. dry, 71.0°F. wet; weather, 01; clouds, 4, amt., 3; sea, 1; swell, 200°, ht., 1 ft.; BT slide No. 9.

Incident solar radiation: daily T 183 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 288 m., 2205 hr. (33'), 131 ml. T, 95 ml. S; H at 0 m., 2245 hr. (14'), 265 ml. T, 265 ml. S.
C N (C-B), H at 182 m., 2319 hr. (15'), 1285.8 ml. T, 1285.8 ml. S; H at 63 m., 2344 hr. (15'), 11.2 ml. T, 11.2 ml. S; H at 25 m., 0004 hr. (15'), 6.7 ml. T, 6.7 ml. S.

Micronekton: o to 88 m., 0028 hr. (49'), 94 ml. T w/o jellies.

Night-lighting operations.

a) Sample lost.

Table 2.--Continued

STATION 10

STRANGER; January 21, 1959; 1757 G.c.t. (zone +7, 1057); 19°33.5'N., 106°03'W.; sounding, 2000 fm.; wind, 360°, force 3; temp., 77.0°F. dry, 71.8°F. wet; weather, cloudy; sea, slight; wire angle, 15°; BT slide No. 10.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	25.4	34.23	-	-	520	0	25.4	34.23		22.66	520	0.00
15	25.29	34.22	4.66	0.47	517	10	25.35	34.23		22.68	518	0.05
25	24.65	34.30	3.86	0.70	494	20	25.05	34.25	4.33	22.78	508	0.10
39	20.08	34.56	1.67	1.8	352	30	23.20	34.39	3.11	23.43	446	0.15
58	16.86	34.61	0.48	2.5	271	50	18.20	34.59	0.97	24.93	304	0.22
78	15.90	34.72	0.00	2.7a)	242	75	16.06	34.70	0.08	25.52	247	0.29
122	13.68	34.79	0.00	2.9a)	191	100	14.77	34.76	0.00	25.86	215	0.35
161	12.76	34.79	0.00	2.9	173	150	13.00	34.79	0.00	26.25	178	0.45
189	12.22	34.81	0.00	2.9	162	200	12.11	34.81	0.02	26.44	160	0.54
223	11.84	34.79	0.07	2.9a)	157	250	11.52	34.77	0.10	26.52	152	0.62
300	10.92	34.73	0.11	3.1a)	145	300	10.92	34.73	0.11	26.60	145	0.69
349	10.40	34.71	0.13	3.1a)	137	400	9.68	34.67	0.13	26.77	129	0.84
446	9.00	34.63	0.13	3.3a)	121	500	8.16	34.57	0.12	26.94	113	0.96
534	7.63	34.54	0.11	3.5a)	108	600	7.01	34.52	0.13	27.06	101	1.08
642	6.64	34.52	0.14	3.7	96	700	6.25	34.53	0.14	27.17	91	1.18
779	5.77	34.53	0.13	3.8a)	84	800	5.68	34.53	0.15	27.25	83	1.28
913	5.12	34.52	0.22	3.9	78	1000	4.74	34.53	0.23	27.36	73	1.44
1027	4.64	34.54	0.23	3.7	71							
1080	4.39	34.56	0.25	3.8a)	67							

Incident solar radiation: daily T 401 g.-cal./$cm.^2$.

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis			
		Lab. Incubator mg. C/$m.^3$/hr.		Deck Incubator	
m.	mg./$m.^3$	at 1,000 ft.-candles		mg. C/$m.^3$/day	
		Light	Dark	Light	Dark
0	0.29	1.98	0.0455	30.7	1.60
10	0.25	0.129	-	-	-
25	0.78	0.167	-	-	-
50	0.29	0.0285	-	-	-
75	0.095	0.0095	-	-	-
100	0.20	0.0114	-	-	-
150	0.11	0.0268	0.0209	-	-
200	0.12	-	-	-	-

Water column: 33 mg./$m.^2$ 14.4 mg. C/$m.^2$/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 287 m., 1205 hr. (32'), 117 ml. T, 111 ml. S.
C N (C-B), H at 88 m., 1305 hr. (15'), 17.9 ml. T, 17.9 ml. S; H at 41 m., 1327 hr. (21'), 168.2 ml. T, 168.2 ml. S; H at 14 m., 1349 hr. (14'), 25.5 ml. T, 25.5 ml. S.

a) Duplicate values: 78 m., 2.6; 122, 2.8; 223, 3.0; 300, 3.0; 349, 3.2; 446, 3.5; 534, 3.6; 779, 3.7; 1080, 3.9 µg. at./l.

Table 2.--Continued

STATION 11

STRANGER; January 21-22, 1959; zone +6, 2320-0257; 19°04'N., 104°41'W.; sounding, 335 fm.; wind, 320°, force 3; temp., 80.0°F. dry, 70.0°F. wet; weather, 02; clouds, 1, amt., 2; sea, 1; swell, 320°, 2 ft.; BT slide No. 11.

Incident solar radiation: daily T 401 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 273 m., 2320 hr. (32'), 52 ml. T, 43 ml. S; H at 0 m., 2357 hr. (15'), 32 ml. T, 32 ml. S. C N (C-B), H at 148 m., 0032 hr. (15'), 16.4 ml. T, 16.4 ml. S; H at 47 m., 0058 hr. (15'), 118.5 ml. T, 100.7 ml. S; H at 21 m., 0117 hr. (15'), 209.1 ml. T, 50.2 ml. S.

Micronekton: o to 90 m., 0142 hr. (44'), 107 ml. T w/o jellies.

Night-lighting operations.

STATION 12

STRANGER; January 22, 1959; 1800 G.c.t. (zone +6, 1200); 18°10'N., 103°26'W.; sounding, 850 fm.; wind, 090°, force 3; temp., 81.0°F. dry, 74.0°F. wet; weather, partly cloudy; sea, moderate; wire angle, 02°; BT slide No. 12.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	27.4	33.76	-	-	613	0	27.4	33.76		21.68	613	0.00
11	27.30	33.75	4.03	0.41	611	10	27.32	33.76		21.70	611	0.06
36	25.70	33.98	3.73	0.61	547	20	27.27	33.76	3.94	21.74	608	0.12
46	22.88	34.33	1.65	1.5	442	30	26.80	33.81	3.85	21.90	592	0.18
55	19.78	34.54	0.48	2.2	345	50	21.60	34.42	1.16	23.91	401	0.28
71	16.88	34.72	0.10	2.6	264	75	16.31	34.74	0.08	25.49	250	0.36
100	14.89	34.78	0.00	2.7	217	100	14.89	34.78	0.00	25.84	217	0.42
155	13.78	34.83	0.00	2.8	190	150	13.88	34.83	0.00	26.10	192	0.53
180	13.38	34.81	0.00	2.8	184	200	12.95	34.83	0.00	26.29	174	0.62
214	12.64	34.84	0.00	2.7	168	250	11.97	34.81	0.03	26.47	157	0.71
273	11.56	34.79	0.06	2.9	151	300	11.24	34.77	0.06	26.57	148	0.79
337	10.82	34.73	0.06	3.0	143	400	9.82	34.66	0.08	26.74	132	0.93
426	9.40	34.63	0.08	3.2	127	500	8.26	34.58	0.10	26.93	114	1.06
505	8.18	34.58	0.10	3.4	113	600	7.28	34.54	0.13	27.04	103	1.17
608	7.20	34.54	0.14	3.6a)	102	700	6.38	34.54	0.10	27.17	91	1.28
726	6.14	34.54	0.08	3.6	88	800	5.64	34.54	0.10	27.25	83	1.37
859	5.26	34.54	0.15	3.7	78	1000	4.66	34.56	0.22	27.39	70	1.54
964	4.84	34.54	0.21	3.7	74							
1014	4.57	34.57	0.23	3.8	68							

Incident solar radiation: daily T 417 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1349 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
5°	5	832	5		
0-3°	10	681	10	5-10	0.0400
5°	20	400	20	10-20	0.0533
5°	30	202	30	20-30	0.0683
10°	40	55.0	39	30-39	0.144
11°	50	12.8	49	39-49	0.146

a) Duplicate value, 3.8 µg. at./l.

Table 2.--Continued

STATION 12 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark
0	0.15	1.12	0.0380	17.8	1.54
10	0.13	0.0855	-	-	-
25	0.20	0.0628	-	-	-
50	0.66	0.078	-	-	-
75	0.14	0.038	-	-	-
100	0.18	0.0133	-	-	-
150	0.061	0.0152	0.0095	-	-
200	0.072	-	-	-	-

Water column: 29 mg./m.^{2} 10.0 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 310 m., 1309 hr. (22'), 117 ml. T, 98 ml. S.
C N(C-B), H at 95 m., 1416 hr. (15'), 325.6 ml. T, 325.6 ml. S; H at 26 m., 1440 hr. (15'), 264.1 ml. T, 264 ml. S; H at 15 m., 1500 hr. (16'), 84.7 ml. T, 84.7 ml. S.

STATION 13

STRANGER; January 27, 1959; zone +6, 0000-0410; 15°30'N., 98°39'W.; sounding, 2650 fm.; wind, 270°, force 2; temp., 81.5°F. dry, 74.0°F. wet; weather, 02; clouds, 8, amt., 1; sea, 1; BT slide No. 13.

Biological Data

Zooplankton: N-C N, o to 278 m., 0125 hr. (32'), 179 ml. T, 140 ml. S; H at 0 m., 0200 hr. (14'), 252 ml. T, 230 ml. S.
C N (C-B), H at 97 m., 0227 hr. (14'), 53.5 ml. T, 53.5 ml. S; H at 32 m., 0250 hr. (15'), 132.9 ml. T, 132.9 ml. S; H at 6 m., 0310 hr. (15'), 287.3 ml. T, 191.5 ml. S.

Micronekton: o to 75 m., 0015 hr. (50'), 199 ml. T w/o jellies.

Night-lighting operations.

Table 2.--Continued

STATION 14

STRANGER; January 27, 1959; 1743 G.c.t. (zone +6, 1143); 14°40'N., 97°44'W.; sounding, 1700 fm.; wind, calm; temp., 81.0°F. dry, 76.0°F. wet; weather, partly cloudy; sea, slight; wire angle, 09°; BT slide No. 14.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	26.5	34.01	-	-	568	0	26.5	34.01		22.15	568	0.00
9	26.28	33.96	3.20	0.52	566	10	26.22	33.97	3.18	22.21	563	0.06
17	25.06	34.16	2.95	0.70	516	20	23.57	34.22	3.10	23.20	468	0.11
20	23.57	34.22	3.10	0.86	468	30	23.10	34.28	3.31	23.38	451	0.15
25	23.24	34.25	3.39	0.97	460	50	22.58	34.31	3.15	23.55	435	0.24
50	22.58	34.31	3.15	1.5a)	435	75	21.28	34.39	3.07	23.98	394	0.35
100	19.97	34.47	2.97	1.7	356	100	19.97	34.47	2.97	24.38	356	0.44
154	16.74	34.66	1.52	1.7a)	265	150	16.98	34.65	1.62	25.27	271	0.60
179	15.16	34.76	-	2.4	223	200	13.56	34.81	0.59	26.16	187	0.72
212	12.76	34.83	0.38	2.7	170	250	12.29	34.80	0.21	26.41	163	0.81
270	12.03	34.79	0.13	2.8	160	300	11.54	34.79	0.05	26.53	151	0.89
334	10.97	34.78	0.00	3.0	142	400	10.07	34.72	0.00	26.75	131	1.04
421	9.77	34.70	0.00	3.4a)	128	500	8.35	34.63	0.04	26.95	111	1.17
498	8.38	34.63	0.04	3.6a)	112	600	7.22	34.60	0.05	27.09	98	1.28
600	7.22	34.60	0.05	3.6a)	98	700	6.36	34.58	0.05	27.20	88	1.38
718	6.22	34.58	0.05	3.8a)	86	800	5.71	34.56	0.10	27.27	81	1.47
852	5.41	34.56	0.14	3.7a)	78	1000	4.59	34.54	0.18	27.38	70	1.64
956	4.84	34.56	0.15	3.7	72							
1006	4.56	34.54	0.19	4.1a)	70							

Incident solar radiation: daily T 444 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1337 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector μa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0°	5	558	5		
0°	10	377	10	5-10	0.0784
0°	15	205	15	10-15	0.122
0°	20	118	20	15-20	0.110
0°	25	62.4	25	20-25	0.127
0°	30	38.4	30	25-30	0.0972
0-1°	40	16.8	40	30-40	0.0827
12-0°	50	7.75	50	40-50	0.0773

a) Duplicate values: 50 m., 1.2; 154, 2.2; 421, 3.2; 498, 3.4; 600, 3.7; 718, 3.7; 852, 3.8; 1006, 3.6 μg. at./l.

Table 2.--Continued

STATION 14 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Dark
0	0.27	1.63	0.19
8	0.33	0.270	-
16	0.39	0.158	-
25	0.48	0.132	-
40	0.29	0.048	-
60	0.13	0 [illegible]	-
80	0.11	0 [illegible]	
		0 [illegible]	
100	0.13		-

Water column: 25 mg./m.^{2} 20.7 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 297 m., 1300 hr. (32'), 565 ml. T, 565 ml. S.
C N (C-B), H at 49 m., 1404 hr. (15'), 286.7 ml. T, 286.7 ml. S; H at 39 m., 1420 hr. (15'), 555.5 ml. T, [illegible] ml. S; H at 22 m., 1445 hr. (15'), 312.5 ml. T, 312.5 ml. S; H at 15 m., 1504 hr. (15'), [illegible] 3 ml. T, 295.3 ml. S.

STATION 15

STRANGER; January 28, 1959; 0536 G.c.t. (zone +6, 2336, I-27); 13°39'N., 97°05.5'W.; sounding, 2000 fm.; wind, 120°, force 2; temp., 80.0°F. dry, 74.0°F. wet; weather, missing; sea, slight; wire angle, 15°; BT slide No. 15.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5}cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5}cm.^{3}/g.	ΔD dyn.m.
[illegible]	[illegible]	33.93	-	-	565	0	26.2	33.93		22.19	565	0.00
10	24.99	33.96	5.51	0.43	528	10	24.99	33.96	5.51	22.58	528	0.05
[illegible]	22.28	34.11	4.83	1.0	441	20	23.10	34.07	5.03	23.22	466	0.10
68	20.39	34.30	3.46	1.6	378	30	22.05	34.14	4.63	23.57	433	0.15
78	18.80	34.40	2.76	1.9	332	50	21.22	34.22	4.06	23.86	405	0.23
88	15.65	34.69	0.76	2.6	239	75	19.50	34.35	3.07	24.42	352	0.33
117	13.68	34.83	0.16	2.9	188	100	14.76	34.76	0.47	25.86	215	0.40
162	12.68	34.81	0.20	2.6a)	171	150	12.94	34.81	0.20	26.28	175	0.50
189	12.14	34.80	0.15	3.0	161	200	11.94	34.81	0.12	26.47	157	0.58
223	11.51	34.81	0.07	3.1	149	250	11.17	34.78	0.08	26.60	145	0.66
297	10.55	34.74	0.08	3.3	138	300	10.50	34.73	0.08	26.68	137	0.73
343	9.48	34.65	0.06	3.5	127	400	8.78	34.64	0.08	26.89	117	0.86
433	8.38	34.64	0.08	3.7	111	500	7.43	34.60	0.06	27.06	101	0.98
514	7.25	34.59	0.06	3.8	99	600	6.55	34.56	0.07	27.16	92	1.08
612	6.46	34.56	0.07	4.0	91	700	5.98	34.54	0.06	27.22	86	1.18
740	5.76	34.54	0.05	4.0	84	800	5.41	34.55	0.07	27.29	79	1.27
867	5.04	34.56	0.14	4.1	75	1000	4.42	(34.54)	0.29	(27.40)	(69)	(1.43)
978	4.50	34.54	0.25	4.1	70							
1027	4.34	-	0.32	4.1	-							

a) Duplicate value, 2.9 µg. at./l.

Table 2.--Continued

STATION 15 (con.)

Biological Data

Zooplankton: N-C N, o to 278 m., 0011 hr. (32'), 207 ml. T, 207 ml. S; H at 0 m., 0046 hr. (15'), 820 ml. T, 820 ml. S.

Micronekton: o to 80 m., 2157 hr. (53'), 204 ml. T w/o jellies.

Night-lighting operations.

STATION 16

STRANGER; January 28, 1959; 1200 G.c.t. (zone +6, 0600); 14°08'N., 97°14'W.; sounding, 1950 fm.; wind, calm; temp., 81.0°F. dry, 75.0°F. wet; weather, clear; sea, calm; wire angle, 08°; BT slide No. 16.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	28.0	33.62	-	-	642	0	28.0	33.62		21.38	642	0.00
11	26.26	34.03	4.91	0.50	560	10	26.35	34.02		22.22	562	0.06
25	23.58	34.22	4.42	0.88	468	20	24.05	34.19	4.51	23.04	484	0.11
70	20.08	34.47	3.21	1.7	358	30	23.21	34.24	4.30	23.32	457	0.16
80	19.44	34.51	3.05	1.8	340	50	21.68	34.36	3.74	23.84	407	0.24
89	18.74	34.53	2.79	1.9	320	75	19.78	34.49	3.13	24.45	349	0.34
130	16.48	34.70	1.61	2.5a)	257	100	17.98	34.59	2.39	24.98	298	0.42
163	13.05	34.87	0.44	2.6	174	150	14.38	34.81	0.84	25.99	203	0.56
192	12.50	34.83	0.43	2.7	166	200	12.40	34.83	0.38	26.40	164	0.65
225	12.16	34.83	0.22	2.7	159	250	11.90	34.81	0.17	26.49	155	0.73
303	11.31	34.78	0.13	2.9	148	300	11.36	34.78	0.13	26.56	149	0.81
350	10.50	34.76	0.08	3.1	136	400	9.67	34.72	0.12	26.81	125	0.96
442	8.99	34.68	0.08	3.3	117	500	8.17	34.64	0.11	26.98	108	1.08
532	7.76	34.61	0.13	3.5	104	600	7.07	34.58	0.10	27.10	97	1.19
638	6.72	34.57	0.08	3.6	93	700	6.27	34.57	0.10	27.21	87	1.29
774	5.74	34.56	0.13	3.7	82	800	5.60	34.55	0.17	27.27	81	1.38
909	5.01	34.52	0.25	3.7a)	77	1000	4.54	34.56	0.34	27.40	69	1.55
1021	4.42	34.57	0.38	3.7	67							
1070	4.19	34.56	0.68	3.8	65							

Incident solar radiation: daily T 398 g.-cal./$cm.^2$.

Biological Data

Zooplankton: N-C N, o to 303 m., 0645 hr. (45'), 141 ml. T, 141 ml. S.

a) Duplicate values: 130 m., 2.2; 909, 3.8 µg. at./l.

STATION 16-1

STRANGER; January 28, 1959; zone +6, 1115-1125; 14°38'N., 97°01'W.; sounding, 2000 fm.; BT slide No. 16-1.[a]

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis			
		Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles		Deck Incubator mg. C/m.^{3}/day	
m.	mg./m.^{3}	Light	Dark	Light	Dark
0	0.22	1.35	0.093	24.3	1.52
		1.79		29.1	
		1.52			

STATION 17

STRANGER; January 28, 1959; 2033 G.c.t. (zone +6, 1433); 15°00'N., 97°02'W.; sounding, 2000 fm.; wind, direction missing, force 1; temp., 82.3°F. dry, 75.0°F. wet; weather, partly cloudy; sea, slight; wire angle, 07°; BT slide No. 17.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T^{-5} 10cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T^{-5} 10cm.^{3}/g.	ΔD dyn.m.
0	29.0	33.84	-	-	658	0	29.0	33.84		21.22	658	0.00
6	26.88	33.85	5.17	0.44	591	10	25.30	34.06	4.42	22.57	528	0.06
16	23.20	34.30	3.21	1.3	452	20	21.76	34.36	3.45	23.81	410	0.10
20	21.76	34.36	-	1.4	410	30	21.21	34.39	3.56	24.00	392	0.14
35	20.91	34.41	3.60	1.6	383	50	19.60	34.50	3.00	24.51	343	0.22
75	17.30	34.64	1.98	2.3	279	75	17.30	34.64	1.98	25.18	279	0.30
100	14.24	34.83	0.53	2.7	200	100	14.24	34.83	0.53	26.02	200	0.36
164	12.73	34.81	0.38	2.8	171	150	13.03	34.82	0.39	26.26	177	0.45
194	12.33	34.79	0.68	2.7	166	200	12.30	34.81	0.55	26.41	163	0.54
229	12.16	34.82	0.26	2.8b)	160	250	11.90	34.81	0.22	26.47	157	0.62
306	11.16	34.76	0.21	3.1b)	147	300	11.26	34.76	0.21	26.56	148	0.70
357	10.50	34.74	0.13	3.2	137	400	9.76	34.69	0.10	26.78	128	0.84
456	8.77	34.64	0.10	3.6	117	500	8.19	34.61	0.11	26.96	110	0.97
546	7.63	34.59	0.11	3.8	104	600	7.11	34.57	0.08	27.09	98	1.08
655	6.62	34.56	0.06	4.0	93	700	6.35	34.55	0.06	27.18	90	1.18
793	5.82	-	0.07	4.0	-	800	5.77	34.55	0.08	27.25	83	1.28
928	5.04	34.55	0.18	4.1	75	1000	4.76	34.54	0.20	27.37	72	1.44
1042	4.63	34.54	0.22	4.1	71							
1093	4.52	34.58	0.28	4.2	67							

Incident solar radiation: daily T 398 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 289 m., 1506 hr. (32'), 332 ml. T, 322 ml. S.

a) Duplicate values: 229 m., 2.9; 306, 2.5 μg. at./l.

Table 2.--Continued

STATION 18

STRANGER; January 29, 1959; 0315 G.c.t. (zone +6, 2115, I-28); 15°45'N., 97°05.5'W.; sounding, 475 fm.; wind, calm; temp., 81.8°F. dry, 75.5°F. wet; weather, clear; sea, slight; wire angle, 02°; BT slide No. 18.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	27.9	33.55	-	-	644	0	27.9	33.55		21.37	644	0.00
11	26.60	33.79	5.47	0.36	587	10	26.71	33.76		21.91	591	0.06
15	25.91	33.94	5.25	0.46a)	556	20	25.06	33.98	4.75	22.57	528	0.12
20	25.06	33.98	4.75	0.61	528	30	25.00	33.99	4.70	22.60	525	0.17
35	22.66	34.25	3.42	1.3	442	50	21.10	34.37	3.01	24.01	391	0.26
45	21.61	34.33	3.21	1.4	408	75	19.35	34.56	2.62	24.62	333	0.35
55	20.40	34.42	2.76	1.7	370	100	17.76	34.65	1.94	25.08	289	0.43
65	19.36	34.56	2.62	1.9	334	150	14.02	34.84	0.51	26.08	194	0.55
100	17.76	34.65	1.94	2.1	289	200	13.33	34.84	0.37	26.22	181	0.64
116	15.68	34.78	0.75	2.6	234	250	12.67	34.82	0.23	26.34	169	0.74
140	14.23	34.85	0.56	2.6a)	198	300	12.12	34.80	0.18	26.43	161	0.82
170	13.65	34.82	0.43	2.7a)	188	400	11.17	34.75	0.12	26.58	147	0.98
205	13.28	34.84	0.36	2.7	180	500	9.80	34.68	0.04	26.76	129	1.13
273	12.36	34.81	0.19	2.7	165	600	8.35	34.62	0.04	26.95	112	1.26
377	11.46	34.78	0.14	2.9	151	700	6.97	34.58	0.03	27.12	95	1.37
507	9.70	34.68	0.04	3.2	128	800	5.92	34.56	0.12	27.24	84	1.47
661	7.46	34.60	0.03	3.5a)	102							
766	6.16	34.56	0.06	3.6	87							
816	5.82	34.56	0.13	3.7	83							

Incident solar radiation: daily T 398 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, 304 m., 2145 hr. (30'), 112 ml. T, 87 ml. S; H at 0 m., 2220 hr. (14'), 98 ml. T, 85 ml. S.

Micronekton: o to 77 m., 2245 hr. (40'), 377 ml. T w/o jellies.

STATION 19

STRANGER; January 29, 1959; 1454 G.c.t. (zone +6, 0854); 15°38.5'N., 96°00'W.; sounding, 120 fm.; wind, 360°, force 2; temp., 81.0°F. dry, 73.2°F. wet; weather, partly cloudy; sea, moderate; wire angle, 18°; BT slide No. 19.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
2	27.00	33.64	4.79	0.32	610	0	27.00	33.64	4.79	21.72	610	0.00
11	26.92	33.71	4.66	0.32	602	10	26.94	34.70	4.70	21.80	602	0.06
20	24.30	34.16	3.58	0.99	494	20	24.30	34.16	3.58	22.93	494	0.12
30	22.46	34.42	2.35	1.6	424	30	22.46	34.42	2.35	23.66	424	0.16
39	19.96	34.78	1.57	2.0	332	50	17.16	34.76	0.87	25.31	267	0.23
50	17.16	34.76	0.87	2.3	267	75	15.98	34.78	0.70	25.61	238	0.29
73	16.08	34.78	0.73	2.5	242	100	14.75	34.78	0.45	25.87	214	0.35
96	14.90	34.78	0.49	2.6b)	217	150	13.50	34.81	0.41	26.17	186	0.45
119	14.24	34.81	0.21	2.8	201	200	(13.00)	(34.82)	(0.42)	(26.28)	(175)	(0.54)
155	13.40	34.81	0.42	2.8	184							
194	13.04	34.82	0.42	2.8	176							

a) Duplicate values: 15 m., 0.39; 140, 2.7; 170, 2.6; 661, 3.6 µg. at./l.
b) Duplicate value, 2.4 µg. at./l.

Table 2.--Continued

STATION 19 (con.)

Incident solar radiation: daily T 436 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 129 m., 0909 hr. (24'), 31 ml. T, 31 ml. S.

STATION 19-1

STRANGER; January 29, 1959; zone +6, 1144-1155; 15°14'N., 96°06'W.; sounding, 50 fm.; BT slide No. 19-1.[a]

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis			
		Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles		Deck Incubator	
m.	mg./m.^{3}	Light	Dark	Light	Dark
0	0.44	5.18	0.116	98.8	2.06
		5.78		90.1	
		6.21			

STATION 20

STRANGER; January 29, 1959; 1953 G.c.t. (zone +6, 1353); 15°00'N., 96°06.5'W.; sounding, 2200 fm.; wind, 220°, force 2; temp., 83.5°F. dry, 77.5°F. wet; weather, partly cloudy; sea, moderate; wire angle, 08°; BT slide No. 20.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T^{-5} 10cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T^{-5} 10cm.^{3}/g.	ΔD dyn.m.
0	28.3	33.73	-	-	645	0	28.3	33.73		21.35	645	0.00
6	25.55	34.06	7.12	0.29	543	10	23.60	34.13	5.69	23.13	475	0.06
11	23.38	34.14	5.51	0.60	469	20	22.34	34.19	4.45	23.53	437	0.10
25	21.92	34.22	4.05	1.2	424	30	21.32	34.28	3.62	23.87	404	0.14
50	20.33	34.39	2.99	1.6	370	50	20.33	34.39	2.99	24.23	370	0.22
85	18.32	34.54	2.10	1.7b)	310	75	19.25	34.47	2.48	24.58	337	0.31
100	14.34	34.79	0.62	2.5b)	204	100	14.34	34.79	0.62	25.98	204	0.38
164	12.41	34.85	0.16	2.7	163	150	12.55	34.85	0.17	26.39	165	0.47
194	12.20	34.81	0.17	2.9b)	161	200	12.15	34.80	0.17	26.43	161	0.55
229	11.92	34.78	0.21	2.8b)	159	250	11.72	34.77	0.21	26.48	156	0.64
306	11.14	34.76	0.13	2.9	146	300	11.21	34.76	0.14	26.57	147	0.71
355	10.59	34.72	0.11	3.0	140	400	9.80	34.68	0.08	26.76	130	0.86
453	8.92	34.64	0.08	3.4	119	500	8.36	34.63	0.11	26.95	112	0.98
542	7.92	34.62	0.13	3.6b)	106	600	7.36	34.58	0.15	27.06	101	1.10
650	6.95	34.56	0.15	3.5	97	700	6.58	34.56	0.17	27.16	92	1.20
788	5.98	34.57	0.17	3.6	84	800	5.92	34.57	0.18	27.25	83	1.30
920	5.26	34.53	0.17	3.7	77	1000	4.83	34.56	0.21	27.37	72	1.97
1035	4.67	34.56	0.23	3.8	70							
1086	4.48	34.56	0.35	3.8	68							

a) Underway sampling station for surface phytoplankton.
b) Duplicate values: 85 m., 1.9; 100, 2.6; 194, 2.8; 229, 2.9; 542, 3.5 µg. at./l.

Table 2.--Continued

STATION 20 (con.)

Incident solar radiation: daily T 436 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 306 m., 1434 hr. (32'), 181 ml. T, 181 ml. S.

STATION 21

STRANGER; January 30, 1959; 0209 G.c.t. (zone +6, 2009, I-29); 14°19.5'N., 96°03'W.; sounding, 1800 fm.; wind, calm; temp., 78.5°F. dry, 75.7°F. wet; weather, clear; sea, moderate; wire angle, 06°; BT slide No. 21.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	26.0	34.14	-	-	544	0	26.0	34.14		22.41	544	0.00
6	25.64	34.21	6.34	0.38a)	528	10	24.55	34.14	6.02	22.84	502	0.05
13	23.91	34.09	5.75	0.66	487	20	22.97	34.07	4.26	23.26	462	0.10
20	22.97	34.07	4.26	1.0	462	30	22.80	34.08	4.08	23.32	457	0.15
50	20.24	34.36	2.84	1.7	370	50	20.24	34.36	2.84	24.23	370	0.23
60	17.85	34.56	2.00	2.1a)	298	75	14.20	34.88	0.22	26.08	194	0.30
70	14.44	34.88	0.29	2.8	200	100	13.26	34.88	0.15	26.23	180	0.35
166	12.19	34.98r	0.07	3.0	-	150	12.43	34.85	0.07	26.40	164	0.44
195	11.80	34.79	0.14	3.0	156	200	11.75	34.78	0.14	26.49	155	0.52
230	11.44	34.76	0.12	3.0	152	250	11.24	34.76	0.12	26.57	148	0.59
310	10.62	34.78	0.12	3.1	136	300	10.74	34.78	0.12	26.67	138	0.67
359	9.86	34.70	0.11	3.3	130	400	9.21	34.67	0.10	26.84	122	0.80
459	8.34	34.64	0.08	3.4	110	500	8.87	34.61	0.07	27.01	106	0.92
548	7.42	34.60	0.07	3.7a)	101	600	7.06	34.59	0.09	27.11	96	1.03
658	6.68	34.58	0.11	-	92	700	6.41	34.58	0.11	27.19	89	1.13
796	5.76	34.56	0.11	-	82	800	5.73	34.56	0.11	27.26	82	1.22
930	5.06	34.55	0.19	-	76	1000	4.72	34.55	0.19	27.38	71	1.39
1045	4.51	34.56	0.19	-	68							
1094	4.27	34.56	0.42	-	66							

Incident solar radiation: daily T 436 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 300 m., 2036 hr. (32'), 172 ml. T, 172 ml. S; H at 0 m., 2112 hr. (16'), 1086 ml. T, 1086 ml. S.

Night-lighting operations.

a) Duplicate values: 6 m., 0.26; 60, 2.2; 548, 3.6 µg. at./l.

Table 2.--Continued

STATION 22

STRANGER; January 30, 1959; 0950 G.c.t. (zone +6, 0350); 13°47'N., 95°51'W.; sounding, 2150 fm.; wind, 320°, force 2; temp., 79.0°F. dry, 75.0°F. wet; weather, clear; sea, moderate; wire angle, 03°; BT slide No. 22.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	26.5	34.05	-	-	565	0	26.5	34.05		22.19	565	0.00
11	25.96	34.07	5.41	0.26	548	10	26.35	34.06		22.24	560	0.06
26	24.73	34.09	4.05	0.67	510	20	25.10	34.09	4.50	22.64	522	0.11
41	19.98	34.47	1.92	1.6	355	30	24.30	34.11	3.71	22.90	497	0.16
51	15.40	34.78	0.35	2.5	227	50	15.70	34.78	0.43	25.66	234	0.23
56	14.87	34.78	0.25	2.5	216	75	13.83	34.79	0.34	26.08	194	0.29
66	14.12	34.79	0.36	2.6	200	100	13.23	34.80	0.24	26.22	181	0.34
166	12.14	34.81	0.13	2.7	160	150	12.38	34.81	0.12	26.39	165	0.42
196	11.81	34.80	0.17	2.8a)	156	200	11.78	34.80	0.17	26.49	155	0.50
230	11.42	34.79	0.14	2.9	149	250	11.12	34.77	0.14	26.59	146	0.58
310	10.16	34.69	0.12	3.0a)	135	300	10.33	34.70	0.13	26.68	137	0.66
359	9.34	34.65	0.15	3.2	123	400	8.69	34.65	0.14	26.92	115	0.78
457	7.86	34.60	0.13	3.5	107	500	7.51	34.58	0.15	27.04	103	0.90
549	7.10	34.57	0.15	3.5	98	600	6.81	34.57	0.15	27.13	94	1.00
657	6.41	34.58	0.12	3.6	89	700	6.13	34.57	0.11	27.22	86	1.10
797	5.63	34.56	0.10	3.6	81	800	5.61	34.56	0.10	27.28	80	1.19
932	4.94	34.56	0.17	3.7a)	73	1000	4.63	34.56	0.32	27.39	70	1.36
1046	4.44	34.57	0.42	3.7	67							
1096	4.26	34.59	0.47	3.8	64							

Incident solar radiation: daily T 432 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 308 m., 0450 hr. (32'), 396 ml. T, 396 ml. S.

Micronekton: o to 92 m., 0200 hr. (34'), 148 ml. T w/o jellies.

a) Duplicate values: 196 m., 2.9; 310, 3.2; 932, 4.0 μg. at./l.

Table 2.--Continued

STATION 23

STRANGER; January 30, 1959; 2057 G.c.t. (zone +6, 1457); 13°49'N., 94°57'W.; sounding, 1850 fm.; wind, 360°, force 5; temp., 81.5°F. dry, 76.5°F. wet; weather, partly cloudy; sea, rough; wire angle, 21°; BT slide No. 23.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	27.2	33.93	-	-	596	0	27.2	33.93		21.86	596	0.00
5	27.22	33.93	4.96	0.38a)	596	10	27.20	33.93	4.95	21.87	595	0.06
24	25.34	33.98	4.25	0.78	536	20	25.90	33.96	4.44	22.30	554	0.12
29	21.64	34.36	2.35	1.5	406	30	19.50	34.52	0.88	24.55	340	0.16
33	17.59	34.63	0.12	2.3	286	50	15.06	34.80	0.11	25.82	219	0.22
48	15.18	34.79	0.11	2.7	222	75	13.70	34.85	0.20	26.16	187	0.27
80	13.47	34.85	0.21	2.7	183	100	13.07	34.85	0.24	26.29	174	0.31
168	11.99	34.83	0.42	2.9a)	156	150	12.29	34.84	0.34	26.44	160	0.40
200	11.72	34.80	0.55	2.7	154	200	11.72	34.80	0.55	26.50	154	0.48
228	11.44	34.79	0.12	2.7	150	250	11.25	34.77	0.11	26.58	147	0.56
303	10.81	34.74	0.10	3.0a)	142	300	10.83	34.74	0.10	26.62	143	0.63
360	10.03	34.70	0.12	3.1a)	132	400	9.48	34.67	0.10	26.80	125	0.77
478	8.42	34.63	0.07	3.4	113	500	8.16	34.62	0.08	26.98	109	0.89
563	7.42	34.60	0.06	3.6	101	600	7.04	34.59	0.10	27.11	96	1.00
665	6.55	34.58	0.14	3.7a)	90	700	6.31	34.58	0.16	27.20	88	1.10
816	5.68	34.57	0.17	3.8a)	81	800	5.76	34.57	0.17	27.27	81	1.19
954	5.01	34.58	0.19	3.7a)	72	1000	4.79	34.58	0.28	27.39	70	1.36
1079	4.46	34.58	0.38	3.7a)	66							
1128	4.24	34.58	0.41	3.9a)	64							

Incident solar radiation: daily T 432 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1238 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
0°	5	745	5		
2°	10	414	10	5-10	0.117
7°	15	196	15	10-15	0.150
4°	20	84.5	20	15-20	0.168
11°	25	34.8	25	20-25	0.177
10°	30	16.7	29	25-29	0.184
20°	40	8.79	38	29-38	0.0712

a) Duplicate values: 5 m., 0.31; 168, 2.8; 303, 2.9; 360, 3.0; 665, 3.8; 816, 3.7; 954, 3.8; 1079, 3.8; 1128, 3.8 μg. at./l.

Table 2.--Continued

STATION 23 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark
0	0.44	2.04	0.160	30.7	2.17
10	-	0.236	-	-	-
25	0.28	0.130	-	-	-
40	0.20	0.134	-	-	-
60	0.23	0.110	-	-	-
80	0.048	0.092	0.134	-	-
140	0.032	-	-	-	-

Water column: 21 ex mg./m.^{2} 20.5 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 308 m., 1155 hr. (32'), 197 ml. T, 197 ml. S.
C N (C-B), H at 49 m., 1302 hr. (15'), 126.2 ml. T, 126.2 ml. S; H at 33 m., 1325 hr. (15'), 380.3 ml. T, 380.3 ml. S; H at 21 m., 1345 hr. (15'), 934.8 ml. T, 934.8 ml. S; H at 12 m., 1405 hr. (15'), 319.3 ml. T, 319.3 ml. S.

STATION 24

STRANGER; January 31, 1959; 0322 G.c.t. (zone +6, 2122, I-30); 14°14'N., 95°05.5'W.; sounding, 2150 fm.; wind, 040°, force 4; temp., 82.0°F. dry, 76.5°F. wet; weather, clear; sea, rough; wire angle, 31°; BT slide No. 24.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	26.7	33.87	-	-	584	0	26.7	33.87		21.99	584	0.00
9	26.49	33.84	4.91	0.41	580	10	26.48	33.84	4.90	22.03	580	0.06
23	25.58	33.84	3.99	0.69	553	20	26.46	33.84	4.85	22.04	579	0.12
27	19.60	34.47	1.30	1.9	346	30	17.90	34.58	0.73	25.00	297	0.16
31	17.47a)	34.61	0.60	2.3	285	50	15.10	34.79	0.12	25.81	220	0.21
35	16.26	34.76	0.28	2.6	247	75	14.03	34.82	0.21	26.06	196	0.26
49	15.15	34.79	0.12	2.6	221	100	13.32	34.83	0.28	26.22	181	0.31
158	12.27	34.83	0.33	2.7	161	150	12.37	34.83	0.33	26.41	163	0.40
189	11.99	34.83	0.22	2.8b)	156	200	11.90	34.81	0.17	26.48	156	0.48
215	11.76	34.79	0.12	3.0b)	155	250	11.46	34.78	0.17	26.53	151	0.56
287	11.17	34.78	0.17	2.8b)	145	300	11.03	34.77	0.17	26.61	144	0.63
340	10.54	34.74	0.15	3.0	137	400	9.75	34.69	0.10	26.78	128	0.78
450	9.06	34.66	0.06	3.4	120	500	8.34	34.65	0.10	26.97	110	0.90
530	7.94	34.65	0.13	3.6b)	104	600	7.27	34.62	0.09	27.10	96	1.01
634	7.02	34.61	0.08	3.6	94	700	6.47	34.58	0.12	27.18	90	1.11
769	5.98	34.56	0.16	3.7	85	800	5.82	34.57	0.19	27.26	82	1.20
901	5.32	34.59	0.23	3.7	75	1000	4.82	34.57	0.29	27.38	71	1.37
1022	4.72	34.57	0.30	3.8	70							
1070	4.53	34.60	0.28	3.8	66							

a) Alternate value, 17.78°C., not used in interpolation.
b) Duplicate values: 189 m., 2.9; 215, 2.9; 287, 2.9; 530, 3.5 µg. at./l.

Table 2.--Continued

STATION 24 (con.)

Incident solar radiation: daily T 432 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 295 m., 2213 hr. (32'), 139 ml. T, 119 ml. S; H at 0 m., 2250 hr. (15'), 299 ml. T, 299 ml. S.[a]

STATION 24-22

STRANGER; February 6, 1959; zone +6, 1125-1135; 14°42'N., 94°44'W.; sounding, 3000 fm.; BT slide No. 24-22.[b]

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Deck Incubator mg. C/m.^{3}/day Light	Dark
0	0.19	8.91	0.440

Phytoplankton haul taken.

STATION 25

STRANGER; February 6, 1959; 0210 G.c.t. (zone +6, 2010, II-5); 15°06'N., 95°01'W.; sounding, 1900 fm.; wind, calm; temp., 82.0°F. dry, 72.9°F. wet; weather, clear; sea, slight; wire angle, 05°; BT slide No. 25.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5}cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5}cm.^{3}/g.	ΔD dyn.m.
0	25.3	34.18	-	-	528	0	25.3	34.18		22.58	528	0.00
16	24.67	34.12	3.28	0.73c)	507	10	24.69	34.12		22.78	508	0.05
20	24.62	34.13	3.07	0.79	504	20	24.62	34.13	3.07	22.82	504	0.10
30	19.28	34.56	0.76	2.0c)	332	30	19.28	34.56	0.76	24.63	332	0.14
40	15.92	-	0.00	2.6c)	-	50	15.36	34.73	0.00	25.70	230	0.20
55	15.06	34.78	0.00	2.5	221	75	14.15	34.81	0.00	26.03	199	0.25
121	13.07	34.83	0.08	2.6	176	100	13.48	34.83	0.01	26.18	184	0.30
156	12.50	34.81	0.51	2.5	167	150	12.59	34.81	0.47	26.35	168	0.39
181	12.35	34.84	0.32	2.6c)	162	200	12.09	34.81	0.38	26.44	160	0.48
215	11.90	34.79	0.46	2.6c)	158	250	11.71	34.78	0.23	26.50	154	0.56
275	11.56	34.78	0.14	2.8	152	300	11.34	34.77	0.13	26.56	149	0.63
339	10.90	34.75	0.13	3.0	143	400	10.03	34.70	0.12	26.72	133	0.78
428	9.63	34.67	0.11	3.2	128	500	8.54	34.62	0.07	26.91	115	0.91
507	8.46	34.62	0.07	3.4	114	600	7.44	34.60	0.14	27.06	101	1.02
611	7.36	34.60	0.14	3.6c)	100	700	6.76	34.58	0.15	27.14	93	1.13
730	6.59	34.58	0.15	3.6	91	800	6.14	34.58	0.11	27.22	86	1.22
863	5.74	34.58	0.08	3.7	80	1000	4.80	34.55	0.21	27.37	72	1.40
968	4.96	34.56	0.23	3.9c)	73							
1019	4.72	34.55	0.19	3.8	71							

a) A similar haul was made between Stations 24 and 25 on February 4 (14°19'N., 95°00'W., 2325-2340 hr.) 0 m., 399 ml. T, 399 ml. S.

b) Underway sampling station for surface phytoplankton.

c) Duplicate values: 16 m., 0.82; 30, 2.1; 40, 2.5; 181, 2.7; 215, 2.7; 611, 3.5; 968, 3.8 µg. at./l.

STATION 25 (con.)

Incident solar radiation: daily T 476 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 300 m., 2105 hr. (31'), 125 ml. T, 107 ml. S; H at 0 m., 2140 hr. (15'), 647 ml. T, 647 ml. S.

Night-lighting operations.

STATION 26

STRANGER; February 6-7, 1959; zone +6, 2300-0040; 14°47'N., 93°48'W.; sounding, 140 fm.; wind, 320°, force 3; temp., 81.6°F. dry, 77.8°F. wet; sea, 1; BT slide No. 26.

Biological Data

Zooplankton: N-C N, o to 141 m., 2313 hr. (14'), 537 ml. T, 505 ml. S; H at 0 m., 2330 hr. (15'), 299 ml. T, 203 ml. S.

Micronekton: o to 17 m., 0000 hr. (35'), 149 ml. T w/o jellies.

STATION 27

STRANGER; February 7, 1959; 1634 G.c.t. (zone +6, 1034); 14°01'N., 92°23'W.; sounding, 115 fm.; wind, direction missing, force 1; temp., 83.8°F. dry, 76.8°F. wet; weather, partly cloudy; sea, moderate; wire angle, 06°; BT slide No. 27.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
1	27.98	33.69	4.58	0.34	636	0	27.98	33.69	4.58	21.45	636	0.00
11	27.53	33.68	4.54	0.31	623	10	27.55	33.68	4.54	21.57	624	0.06
25	26.97	33.66	4.45	0.33	608	20	27.13	33.66	4.48	21.70	612	0.12
50	26.33	33.78	3.85	0.55	580	30	26.92	33.66	4.42	21.78	604	0.18
61	24.76	33.95	3.40	0.99	522	50	26.33	33.78	3.85	22.03	580	0.30
71	21.16	34.43	1.78	1.8	388	75	20.52	34.52	1.54	24.28	365	0.42
76	20.37	34.54	1.48	1.9	360	100	15.62	34.78	0.71	25.68	232	0.50
81	18.10	34.72	1.06	2.2	292	150	13.27	34.83	0.46	26.23	180	0.60
91	16.98	34.74	0.80	2.2	264	200	12.82	34.85	0.40	26.33	170	0.69
100	15.62	34.78	0.71	2.4	232							
120	14.12	34.83	0.68	2.5	197							
160	13.12	34.83	0.41	2.6	177							
200	12.82	34.85	0.40	2.6	170							

Incident solar radiation: daily T 495 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1053 hr.:

Wire Angle	Wire Out m m.	Corrected Output of Detector μa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0°	10	614	10		
0°	20	271	20	10-20	0.0818
0°	30	95.5	30	20-30	0.104
0°	40	25.6	40	30-40	0.132
0°	50	9.65	50	40-50	0.0975

Table 2.--Continued

STATION 27 (con.)

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis				
		Lab. Incubator mg. C/m.^{3}/hr.		Deck Incubator		Neutral Filter
m.	mg./m.^{3}	at 1000 ft.-candles		mg. C/m.^{3}/day		% T.
		Light	Dark	Light	Dark	
0	0.23	1.54	0.381	25.6	2.04	100
10	0.13	0.197	-	2.59	-	24
25	0.43	0.406	-	5.33	-	24
50	0.40	0.304	-	2.69	-	17
75	0.079	0.127	-	1.33	-	3.4
100	0.047	0.057	0.032	1.15	-	3.4
150	0.046	-	-	-	-	-
200	0.038	-	-	-	-	-

Water column: 24 mg./m.^{2} 28.8 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Total phosphorus: 0 m., 0.61; 10, 0.53; 25, 0.57; 50, 0.71; 75, 1.72; 100, 2.16 μg. at./l.

Zooplankton: N-C N, o to 131 m., 1149 hr. (14'), 230 ml. T, 197 ml. S.
C N (C-B), H at 140 m., 1213 hr. (15'), 65.4 ml. T, 65.4 ml. S; H at 70 m., 1239 hr. (15'), 333.3 ml. T, 333.3 ml. S; H at 32 m., 1300 hr. (15'), 40.4 ml. T, 40.4 ml. S.

STATION 28

STRANGER; February 7-8, 1959; zone +6, 2200-0210; 12°41'N., 91°35'W.; sounding, 2200 fm.; wind, 360°, force 3; temp., 83.0°F. dry, 77.0°F. wet; weather, 02; clouds, 0; sea, 0; swell, 120°, 5 ft.; BT slide No. 28.

Incident solar radiation: daily T 495 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 309 m., 2204 hr. (30'), 251 ml. T, 239 ml. S; H at 0 m., 2245 hr. (15'), 737 ml. T, 737 ml. S.
C N (C-B), H at 162 m., 2314 hr. (15'), 127.5 ml. T, 127.5 ml. S; H at 74 m., 2341 hr. (15'), 226.3 ml. T, 226.3 ml. S; H at 25 m., 0003 hr. (15'), 444.6 ml. T, 444.6 ml. S.

Micronekton: o to 78 m., 0035 hr. (47'), 223 ml. T w/o jellies.

Night-lighting operations.

Table 2.--Continued

STATION 29

STRANGER; February 8, 1959; 1717 G.c.t. (zone +6, 1117); 11°40'N., 90°53'W.; sounding, 1950 fm.; wind, 090°, force 5; temp., 81.5°F. dry, 73.8°F. wet; weather, clear; sea, high; wire angle, 05°; BT slide No. 29.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
2	26.44	33.78	4.76	0.48	583	0	26.44	33.78	4.76	22.00	583	0.00
12	26.46	33.86	4.73	0.48	578	10	26.45	33.85	4.74	22.04	579	0.06
37	24.84	33.98	4.47	0.75	522	20	26.45	33.86	4.72	22.06	577	0.12
47	22.10	34.24	4.45	1.3	427	30	26.06	33.90	4.66	22.20	564	0.17
61	17.40	34.75	1.06	2.7a)	273	50	20.80	34.39	3.77	24.10	382	0.27
72	16.70	34.79	0.64	2.2a)	254	75	16.52	34.80	0.73	25.49	250	0.35
82	15.97	34.80	0.95	2.2	238	100	14.60	34.82	0.61	25.94	207	0.41
102	14.54	34.83	0.59	2.4	205	150	13.11	34.85	0.60	26.28	175	0.50
122	14.21	34.88	0.68	2.4	195	200	12.40	34.87	0.41	26.43	161	0.59
136	13.58	34.87	0.57	2.4a)	183	250	11.69	34.76	0.33	26.49	155	0.67
160	12.90	34.85	0.61	2.4	172	300	11.14	34.76	0.26	26.58	146	0.75
199	12.42	34.87	0.42	2.6	161	400	9.69	34.69	0.23	26.78	128	0.89
238	11.83	34.78	0.38	2.6	157	500	8.27	34.63	0.13	26.96	110	1.02
298	11.18	34.76	0.28	2.7a)	147	600	7.12	34.59	0.13	27.10	97	1.12
388	9.89	34.70	0.23	3.0	130							
503	8.22	34.63	0.13	3.3	110							
652	6.64	34.58	0.13	3.5	92							

Incident solar radiation: daily T 508 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1301 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector μa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0°	10	604	10		
08°	20	326	19	10-19	0.0686
15°	30	154	29	19-29	0.0750
21°	40	50.1	37	29-37	0.1404
24°	50	27.7	46	37-46	0.0659
22°	60	13.9	55	46-55	0.0766

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark	Neutral Filter % T.
0	0.27	3.53	0.180	33.5	3.32	
10	0.22	0.404	-	1.20	-	58
25	0.27	0.170	-	1.26	-	24
50	0.44	0.132	-	0.394	-	17
75	0.093	0.035	-	0.252	-	3.4
100	0.058	0.0325	-	0.252	-	3.4
150	0.070	0.047	0.028	-	-	-

Water column: 24 mg./m.^{2} 27.0 mg. C/m.^{2}/hr.

a) Duplicate values: 61 m., 2.2; 72, 2.3; 136, 2.5; 298, 2.8 μg. at./l.

Table 2.--Continued

STATION 29 (con.)

Phytoplankton haul taken.

Total phosphorus: 0 m., 0.47; 10, 0.71; 25, 0.61; 50, 1.41; 75, 1.48; 100, 1.95; 150, 1.37, 2.50 µg. at./l.

Zooplankton: N-C N, o to 320 m., 1210 hr. (32'), 166 ml. T, 166 ml. S.

SURFACE CHLOROPHYLL A DETERMINATIONS

Underway sampling positions 29-2 through 29-38.

Station Number	BT Number	Local Time	Date Feb., 1959	Time Zone	Depth m.	Surface Chlorophyll a	Latitude N.	Longitude W.
29-2	29-2	1900	8	+6	2020	0.28	11°10'	90°27'
29-4	29-4	2200	8	+6	2000	0.23	11°02'	90°22'
29-6	29-6	2300	8	+6	2000	0.17	10°50'	90°19'
29-8	29-8	0100	9	+6	2005	0.17	10°38'	90°16'
29-12	29-12	0500	9	+6	2100	0.22	10°15'	90°09'
29-14	29-14	0700	9	+6	1900	0.19	10°06'	90°06'
29-16	29-16	0900	9	+6	2000	0.21	9°56'	89°57'
29-18	29-18	1100	9	+6	1900	0.14	9°46'	89°48'
29-20	29-18	1300	9	+6	1860	0.083	9°38'	89°41'
29-22	29-22	1500	9	+6	1900	0.13	9°27'	89°39'
29-24	29-24	1700	9	+6	1850	0.14	9°18'	89°20'
29-26	29-26	1900	9	+6	1900	0.15	9°09'	89°12'
29-28	29-28	2100	9	+6	1950	0.15	8°57'	89°02'
29-30	29-30	2300	9	+6	1900	0.12	8°47'	88°52'
29-32	29-32	0100	10	+6	1850	0.081	8°36'	88°42'
29-34	29-34	0300	10	+6	1875	0.088	8°26'	88°31'
29-36	29-36	0500	10	+6	1840	0.086	8°16'	88°21'
29-38	29-38	0700	10	+6	1850	0.14	8°06'	88°11'

STATION 30

STRANGER; February 10, 1959; 1650 G.c.t. (zone +5, 1150); 8°10'N., 88°06.5'W.; sounding, 1850 fm.; wind, 030°, force 4; temp., 83.0°F. dry, 78.2°F. wet; weather, clear; sea, very rough; wire angle, 08°; BT slide No. missing.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	28.1	33.26	-	-	671	0	28.1	33.26		21.08	671	0.00
11	27.76	33.80	4.39	0.37	622	10	27.81	33.73		21.53	628	0.06
21	25.23	34.42	4.35	0.56	501	20	25.30	34.41	4.36	22.82	504	0.12
25	23.93	34.45	3.90	0.67	462	30	23.20	34.51	3.66	23.52	438	0.17
40	21.20	34.65	3.07	1.2	374	50	19.00	34.68	2.42	24.80	316	0.24
60	17.48	34.70	2.00	1.7	279	75	16.00	34.76	1.68	25.58	241	0.31
80	15.56	34.78	1.57	1.9	230	100	14.50	34.84	1.22	25.97	204	0.37
163	13.07	34.91	0.78	2.3	171	150	13.30	34.90	0.84	26.28	175	0.47
192	12.72	34.88	0.72	2.4	166	200	12.67	34.88	0.70	26.39	165	0.55
226	12.42	34.89	0.56	2.6	160	250	12.28	34.89	0.53	26.47	157	0.64
304	11.70	34.83	0.42	2.7	151	300	11.74	34.83	0.44	26.53	151	0.72
354	11.14	34.78	0.40	2.8	145	400	10.29	34.73	0.24	26.71	134	0.86
450	9.24	34.68	0.11	3.3	122	500	8.32	34.64	0.08	26.96	110	0.99
540	7.66	34.63	0.06	3.5	102	600	7.11	34.61	0.09	27.11	96	1.10
648	6.73	34.60	0.13	3.6	91	700	6.32	34.59		27.21	87	1.20
921	5.00	34.58	0.59u	3.4	72	800	5.66	34.58		27.28	80	1.29
1036	4.57	34.60	0.89u	3.5	66	1000	4.69	34.59		27.41	68	1.45
1086	4.37	34.58	0.64u	3.7	65							

Incident solar radiation: daily T 502 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1500 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
6°	10	488	10		
10°	20	218	19	10-19	0.0896
20°	30	144	28	19-28	0.0460
3°	40	92.8	40	28-40	0.0367
6°	50	70.8	50	40-50	0.0270
7°	60	40.8	60	50-60	0.0551

Table 2.--Continued

STATION 30 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark	Neutral Filter % T.
0	0.075	0.580	0.086	10.6	1.67	
10	0.066	0.084	-	2.06	-	58
25	0.13	0.152	-	1.63	-	22
50	0.20	0.121	-	2.31	-	17
75	0.21	0.209	-	-	-	-
100	0.12	0.055	-	1.63	-	3.4
150	0.055	0.147	0.040	-	-	-
200	0.039					

Water column: 16 mg./m.^{2} 17.0 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Total phosphorus: 0 m., 0.40; 10, 0.39; 25, 0.72; 50, 1.64; 75, 1.12; 1.25; 100, 1.82; 150, 2.21; 200, 1.98, 2.34 μg. at./l.

Zooplankton: N-C N, o to 308 m., 0903 hr. (32'), 386 ml. T, 198 ml. S.
C N (C-B), H at 505 m., 1008 hr. (31'), 14.7 ml. T, 14.7 ml. S; H at 139 m., 1101 hr. (15'), 53.3 ml. T, 53.3 ml. S; H at 94 m., 1321 hr. (15'), 38.9 ml. T, 38.9 ml. S; H at 74 m., 1343 hr. (15'), 427.2 ml. T, 427.2 ml. S; H at 50 m., 1404 hr. (15'), 306.8 ml. T, 306.8 ml. S; H at 26 m., 1424 hr. (15'), 130.8 ml. T, 130.8 ml. S; H at 10 m., 1540 hr. (15'), 45.4 ml. T, 45.4 ml. S.

STATION 31

STRANGER; February 11, 1959; 0012 G.c.t. (zone +5, 1912, II-10); 8°36.5'N., 88°16'W.; sounding, 1810 fm.; wind, 020°, force 4; temp., 82.3°F. dry, 76.7°F. wet; weather, partly cloudy; sea, very rough; wire angle, 13°; BT slide No. 31.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	28.4	32.48	-	-	737	0	28.4	32.48	(4.65)	20.40	737	0.00
1	28.29	32.47	4.65	0.30	734	10	28.07	32.73	4.59	20.69	708	0.07
6	28.28	32.44	4.59	0.32	736	20	26.30	34.12	4.66	22.30	554	0.14
15	27.26	33.92	4.68	0.39	598	30	22.30	34.60	3.83	23.86	406	0.18
25	24.49	34.41	4.49	0.71	480	50	17.56	34.74	2.69	25.20	278	0.25
44	18.52	34.72	2.68	1.6	302	75	14.35	34.90	1.68	26.05	197	0.31
69	15.01	34.82	2.76	2.1	216	100	13.90	34.93	0.94	26.18	185	0.36
93	13.94	34.93	0.96	2.4	186	150	13.22	34.90	0.90	26.29	174	0.45
117	13.58	34.90	0.85	2.5	181	200	12.67	34.90	0.54	26.40	164	0.54
156	13.15	34.90	0.91	2.5	172	250	12.01	34.88	0.34	26.50	154	0.62
196	12.71	34.90	0.55	2.7	164	300	11.40	34.80	0.28	26.56	148	0.70
246	12.06	34.88	0.38	2.8	154	400	(9.84)	(34.74)	(0.19)	(26.80)	(126)	(0.84)
296	11.45	34.80	0.29	3.0	148							
399	9.86	34.74	0.19	3.3	127							

Incident solar radiation: daily T 502 g.-cal./cm.^{2} .

Biological Data

Phytoplankton: chlorophyll a (mg./m.^{3}), 0 m., 0.082.

Zooplankton: N-C N, o to 289 m., 1934 hr. (32'), 567 ml. T, 487 ml. S.

Table 2.--Continued

STATION 32

STRANGER; February 11, 1959; G.c.t. (zone +5, 2315, II-10); 8°58'N., 88°22'W.; sounding, 1800 fm.; wind, 070°, force 4; temp., 82.4°F. dry, 77.9°F. wet; weather, partly cloudy; sea, very rough; wire angle, 21°; BT slide No. 32.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	27.9	32.54	-	-	716	0	27.9	32.54		20.61	716	0.00
10	27.94	32.54	4.31	0.29	718	10	27.94	32.54	4.31	20.60	718	0.07
15	27.92	32.77	4.18	0.29	701	20	27.60	33.09	4.13	21.11	668	0.14
24	23.78	34.34	4.04	0.70	466	30	20.40	34.70	2.88	24.45	349	0.19
29	20.72	34.67	2.90	1.3	360	50	15.82	34.74	1.98	25.60	239	0.25
38	17.64	34.86	2.85	1.7	271	75	14.38	34.74	0.95	25.93	208	0.31
52	15.52	34.72	1.72	1.9	234	100	13.95	34.88	0.86	26.13	190	0.36
75	14.38	34.74	0.95	2.3	208	150	13.23	34.91	0.54	26.30	174	0.45
104	13.90	34.90	0.84	2.3	188	200	11.95	34.84	0.40	26.50	154	0.53
132	13.53	34.93	0.60	2.4	178	250	11.28	34.80	0.25	26.59	146	0.61
159	13.04	34.90	0.51	2.5	171	300	10.75	34.77	0.24	26.66	139	0.68
196	12.02	34.85	0.41	2.6	156	400	9.71	34.70	0.13	26.78	127	0.82
241	11.40	34.81	0.25	2.7	147	500	(8.09)	(34.68)	(0.12)	(27.03)	(104)	(0.94)
288	10.86	34.78	0.24	2.8	140							
388	9.86	34.70	0.14	3.1	130							
496	8.18	34.68	0.12	3.3	105							

Incident solar radiation: daily T 502 g.-cal./cm.^{2} .

Biological Data

Phytoplankton: chlorophyll a (mg./m.^{3}), 0 m., 0.10.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 291 m., 2344 hr. (14'), 339 ml. T, 33 ml. S; H at 0 m., 0020 hr. (14'), 256 ml. T, 256 ml. S. C N (C-B), H at 83 m., 0047 hr. (15'), 171.8 ml. T, 171.8 ml. S; H at 43 m., 0114 hr. (15'), 349.1 ml. T, 349.1 ml. S; H at 12 m., 0133 hr. (14'), 184.8 ml. T, 165.4 ml. S.

Micronekton: o to ? m., 0228 hr. (42'), 98 ml. T w/o jellies.

STATION 33

STRANGER; February 11, 1959; zone +5, 0820-1015; 9°49'N., 88°32'W.; sounding, 1800 fm.; wind, 070°, force 7; temp., 80.8°F. dry, 75.0°F. wet; weather, 02; clouds, 4, 9, amt., 2; sea, 3; swell, 070°, 12 ft., 10 sec.; BT slide No. 33.

Incident solar radiation: daily T 451 g.-cal./cm.^{2} .

Biological Data

Phytoplankton: chlorophyll a (mg./m.^{3}), 0 m., 0.12.

Phytoplankton haul taken.

Zooplankton: N-C N, o to 300 m., 0933 hr. (32'), 586 ml. T, 544 ml. S.

Table 2.--Continued

STATION 33-1

STRANGER; February 11, 1959; zone +5, 1300-1305; 10°04'N., 88°33'W.[a]

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis	
		Lab. Incubator mg. C/m.^{3}/hr.	
m.	mg./m.^{3}	at 1,000 ft.-candles	
		Light	Dark
0	0.15	(3.56	(0.180
		(3.40	(
		(2.80	(0.180
		(1.58	

Phytoplankton haul taken.

STATION 34

STRANGER; February 13, 1959; zone +5, 0000-0100; 11°07'N., 88°07'W.; sounding, 1600 fm.; wind, 060°, force 5; temp., 82.0°F. dry, 73.5°F. wet; weather, 02; sea, 2; swell, 060°, 10 ft., 7 sec.; BT slide No. 34.

Incident solar radiation: daily T 524 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 303 m., 0004 hr. (32'), 139 ml. T, 118 ml. S; H at 0 m., 0038 hr. (15'), 431 ml. T, 415 ml. S.

STATION 35

STRANGER; February 13, 1959; 1725 G.c.t. (zone +5, 1225); 12°06'N., 89°36'W.; sounding, 2350 fm.; wind, 060°, force 6; temp., 82.9°F. dry, 71.3°F. wet; weather, clear; sea, rough; wire angle, missing; BT slide No. 35.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	25.7	33.56	-	-	576	0	25.7	33.56		22.07	576	0.00
8b)	25.68	33.57	4.34	0.36	575	10	25.66	33.57	4.33	22.08	575	0.06
23	25.64	33.57	4.22	0.42	574	20	25.64	33.57	4.26	22.09	574	0.11
29	25.70	33.58	4.26	0.38	575	30	25.70	33.58	4.26	22.08	575	0.17
36	25.68	33.61	4.23	0.38	573	50	25.38	33.61	4.18	22.19	564	0.29
43	25.62	33.57	4.22	0.42	573	75	23.00	34.23	3.91	23.37	452	0.41
79	22.10	34.43	3.78	1.2	413	100	16.26	34.84	1.18	25.58	242	0.50
118	15.28	34.87	0.82	2.2	218	150	14.14	34.89	0.68	26.09	193	0.61
173	13.58	34.90	0.64	2.4	181							

a) Underway sampling station for surface phytoplankton.
b) Wire angle missing, depth somewhat in error.

Table 2.--Continued

STATION 35 (con.)

Incident solar radiation: daily T 511 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1415 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
0°	5	537	5		
0°	10	252	10	5-10	0.151
0°	15	130	15	10-15	0.132
10°	20	60.9	19	15-19	0.190

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis				
		Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles		Deck Incubator mg.C/m.^{3}/day		Neutral Filter
m.	mg./m.^{3}	Light	Dark	Light	Dark	% T.
0	1.3	10.4	0.386	-	-	-
10	1.4	0.137	-	4.63	-	24
25	1.5	0.567	-	1.58	-	24
50	1.2	0.392	-	3.68	-	17
75	0.27	0.088	-	2.04	-	3.4
100	0.18	0.204	-	2.51	-	3.4
150	0.10	0.148	0.016	-	-	-
200	0.09	-	-	-	-	-

Water column: 105 mg./m.^{2} 64.3 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Total phosphorus: 0 m., 1.00; 10, 0.94; 25, 0.62; 50, 0.67; 75, 1.29; 100, 1.56; 150, 5.05, 2.29; 200, 1.79 μg. at./l.

Zooplankton: N-C N, o to 243 m., 1335 hr. (32'), 196 ml. T, 196 ml. S.

STATION 36

STRANGER; February 13-14, 1959; zone +6, 2200-0118; 13°01'N., 91°03'W.; sounding, 1200 fm.; wind, 350°, force 3; temp., 81.2°F. dry, 77.0°F. wet; weather, 02; clouds, amt., 0; swell, 350°, 4 ft., 7 sec.; BT slide No. 36.

Incident solar radiation: daily T 511 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 301 m., 2302 hr. (31'), 204 ml. T, 175 ml. S; H at 0 m., 2238 hr. (15'), 473 ml. T, 473 ml. S. C N (C-B), H at 102 m., 2300 hr. (15'), 155.7 ml. T, 129.9 ml. S; H at 64 m., 2323 hr. (15'), 467.1 ml. T, 467.1 ml. S; H at 25 m., 2345 hr. (15'), 44.3 ml. T, 44.3 ml. S.

Micronekton: o to 82 m., 0013 hr. (49'), 211 ml. T w/o jellies.

Table 2.--Continued

STATION 37

STRANGER; February 14, 1959; 2005 G.c.t. (zone +6, 1405); 14°12'N., 92°35'W.; sounding, 150 fm.; wind, 330°, force 2; temp., 83.0°F. dry, 76.8°F. wet; weather, partly cloudy; sea, slight; wire angle, 00°; BT slide No. 37A, 37B.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	28.5	33.73	-	-	650	0	28.5	33.73	(4.24)	21.30	650	0.00
1	28.40	33.74	4.24	0.37	646	10	28.08	33.72	4.23	21.43	638	0.06
11	28.06	33.72	4.23	0.36	637	20	27.30	33.77	4.12	21.72	610	0.13
51	24.65	34.03	3.17	1.0	512	30	27.00	33.79	3.94	21.84	599	0.19
61	20.07	34.56	1.14	1.9	351	50	24.85	34.02	3.22	22.67	519	0.30
77	16.86	34.76	0.50	2.3	261	75	17.30	34.75	0.51	25.28	270	0.40
87	15.64	34.78	0.50	2.5	232	100	15.06	34.78	0.31	25.81	220	0.46
102	14.98	34.78	0.30	2.5	218	150	13.52	34.85	0.36	26.20	183	0.56
127	14.06	34.79	0.44	2.6	199	200	12.99	34.85	0.32	26.30	173	0.65
168	13.25	34.87	0.32	2.7	177	250	12.47	34.82	0.29	26.38	166	0.74
208	12.92	34.85	0.32	2.6	172							
258	12.38	34.81	0.27	2.6	165							

Incident solar radiation: daily T 504 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1318 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector µa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0°	10	662	10		
0°	20	354	20	10-20	0.0626
0°	30	109	30	20-30	0.118
0°	40	50.8	40	30-40	0.0763
0°	50	24.3	50	40-50	0.0738
7°	70	8.24	70	50-70	0.0540
18°	80	5.53	76	70-76	0.0665

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark	Neutral Filter % T.	In Situ mg. C/m.^{3}/day Light	In Situ Dark
0	0.12	1.14	0.351	24.3	-	100	6.58 5.51	-
10	0.14	0.105	-	1.11	-	58	0.322 0.430	-
25	0.22	0.131	-	3.62	-	24	0.718 1.02	-
50	0.29	0.124	-	2.24	-	17	1.00	-
75	0.35	0.052	-	0.790	-	3.4	0.197	-
100	0.063	0.081	-	3.086	-	3.4	0.108	-
150	0.053	0.164	0.019	-	-	-	0.0718	0.054
Water column:	25 mg./m.^{2}	14.5 mg. C/m.^{2}/hr.					138 mg. C/m.^{2}/day	

Table 2.--Continued

STATION 37 (con.)

Phytoplankton haul taken.

Total phosphorus: 0 m., 1.24, 0.75; 10, 0.66; 25, 0.52; 50, 0.78; 75, 2.03; 100, 1.98; 150, 2.36 μg. at./l.

Zooplankton: N-C N, o to 128 m., 1427 hr. (14'), 535 ml. T, 503 ml. S.
C N (C-B), H at 183 m., 1454 hr. (15'), 32.4 ml. T, 32.4 ml. S; H at 97 m., 1516 hr. (15'), 4.2 ml. T, 4.2 ml. S; H at 73 m., 1543 hr. (15'), 19.9 ml. T, 19.9 ml. S; H at 62 m., 1605 hr. (15'), 33.8 ml. T, 33.8 ml. S; H at 48 m., 1630 hr. (15'), 72.3 ml. T, 72.3 ml. S; H at 42 m., 1650 hr. (15'), 23.2 ml. T, 23.2 ml. S; H at 26 m., 1710 hr. (15'), 2.8 ml. T, 2.8 ml. S; H at 9 m., 1731 hr. (14'), 23.8 ml. T, 23.8 ml. S.

STATION 38

STRANGER; February 14-15, 1959; zone +6, 2330-0130; 15°00'N., 93°00'W.; sounding, 25 fm.; wind, 320°, force 2; temp., 82.2°F. dry, 76.3°F. wet; weather, 01; clouds, amt., 0; sea, 0; swell, 320°, 3 ft.; BT slide No. 38.

Incident solar radiation: daily T 504 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, H at 0 m., 2334 hr. (14'), 157 ml. T, 157 ml. S.
C N (C-B), H at 21 m., 0009 hr. (15'), 182.6 ml. T, 182.6 ml. S; H at 0 m., 0029 hr. (15'), 63.6 ml. T, 63.6 ml. S.

Night-lighting operations.

STATION 39

STRANGER; February 15, 1959; zone +6, 2200-2255; 15°37'N., 95°58'W.; sounding, 430 fm.; wind, 220°, force 2; temp., 82.0°F. dry, 75.9°F. wet; weather, 02; clouds, amt., 0; sea, 1; swell, 220°, 3 ft.; BT slide No. 39.

Incident solar radiation: daily T 493 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, H at 0 m., 2206 hr. (15'), 33 ml. T, 33 ml. S.

Night-lighting operations.

Table 2.--Continued

STATION 40

STRANGER; February 16, 1959; 1648 G.c.t. (zone +6, 1048); 15°51'N., 97°58.5'W.; sounding, 500 fm.; wind, 120°, force 4; temp., 81.0°F. dry, 74.5°F. wet; weather, partly cloudy; sea, slight; wire angle, 26°; BT slide No. 40A, 40B.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	27.8	33.98	-	-	610	0	27.8	33.98	(4.24)	21.73	610	0.00
1	27.72	33.95	4.24	0.32	609	10	26.75	33.93	4.50	22.01	582	0.06
9	26.82	33.93	4.51	0.35	584	20	25.99	33.94	4.04	22.26	558	0.12
29	25.31	33.96	3.56	0.79	536	30	25.26	33.96	3.52	22.50	535	0.17
46	23.74	34.14	2.70	1.2	478	50	23.25	34.18	2.62	23.26	462	0.27
55	22.38	34.27	2.52	1.4	432	75	18.08	34.60	1.44	24.96	300	0.36
63	19.14	34.55	1.32	2.1	329	100	16.42	34.74	0.63	25.47	252	0.44
76	17.96	34.61	1.41	2.2	296	150	13.86	34.82	0.21	26.10	192	0.55
88	17.22	34.73	0.70	2.2	271	200	12.96	34.83	0.23	26.29	174	0.64
102	16.26	34.74	0.62	2.3	249	250	12.28	34.81	0.20	26.41	163	0.73
121	14.44	34.74	0.47	2.5	210	300	11.59	34.77	0.14	26.51	153	0.81
145	13.98	34.81	0.23	2.8	195	400	10.31	34.71	0.14	26.69	136	0.95
171	13.36	34.83	0.22	2.7	182	500	9.12	34.64	0.17	26.84	122	1.09
227	12.60	34.83	0.22	2.8	168	600	7.92	34.60	0.10	27.00	107	1.21
316	11.36	34.76	0.12	2.9	150	700	6.74	34.57	0.10	27.14	93	1.33
430	9.95	34.69	0.15	3.1	132							
577	8.20	34.61	0.12	3.6	111							
679	6.98	34.59	0.08	3.7	95							
729	6.44	34.55	0.13	3.8	92							

Incident solar radiation: daily T 498 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1245 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector μa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0°	5	703	5		
0°	10	524	10	5-10	0.0588
0°	20	186	20	10-20	0.104
0°	30	65.0	30	20-30	0.105
0-3°	40	26.5	40	30-40	0.0897
0-3°	50	12.8	50	40-50	0.0728

Table 2.--Continued

STATION 40 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1000 ft.-candles Light	Dark
0	0.26	2.16	0.316
10	0.29	-	-
25	0.53	0.652	-
50	0.40	-	-
75	0.15	-	-
100	0.12	-	-
150	0.053	-	-
200	0.041	-	-

Water column: 32 mg./m.^{2}

Phytoplankton haul taken.

Total phosphorus: 0 m., 0.75; 10, 0.94; 25, 0.75; 50, 1.20; 75, 2.21; 100, 2.11 µg. at./l.

Zooplankton: N-C N, o to 313 m., 1200 hr. (32'), 88 ml. T, 78 ml. S.
C N (C-B), H at 100 m., 1318 hr. (15'), 37.2 ml. T, 37.2 ml. S; H at 58 m., 1342 hr. (15'), 14.5 ml. T, 14.5 ml. S; H at 24 m., 1402 hr. (15'), 62.8 ml. T, 62.8 ml. S; H at 0 m., 1423 hr. (15'), 50.5 ml. T, 50.5 ml. S.

STATION 41

STRANGER; February 16-17, 1959; zone +6, 2300-0140; 16°23'N., 99°28'W.; sounding, 620 fm.; wind, 360°, force 2; temp., 84.0°F. dry, 77.0°F. wet; weather, 02; sea, 1; swell, 270°, 3 ft.; BT slide No. 41.

Incident solar radiation: daily T 498 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 304 m., 2308 hr. (32'), 86 ml. T, 71 ml. S; H at 0 m., 2342 hr. (16'), 147 ml. T, 117 ml. S.

Micronekton: o to 81 m., 0047 hr. (48'), 338 ml. T w/o jellies.

Table 2.--Continued

STATION 42

STRANGER; February 17, 1959; 1520 G.c.t. (zone +6, 0920); 16°42.5'N., 100°12'W.; sounding, 490 fm.; wind, calm; temp., 81.0°F. dry, 74.5°F. wet; weather, partly cloudy; sea, slight; wire angle, 08°; BT slide No. 42.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	28.4	33.73	-	-	647	0	28.4	33.73		21.33	647	0.00
11	28.25	33.75	4.19	0.32	640	10	28.26	33.75		21.39	641	0.06
40	25.04	34.15	3.36	0.84	516	20	28.22	33.75	4.18	21.40	640	0.13
50	22.56	34.40	2.21	1.4	428	30	27.20	33.88	3.92	21.83	599	0.19
65	19.69	34.59	1.22	2.0	340	50	22.56	34.40	2.21	23.62	428	0.29
80	17.51	34.65	1.56	2.1	283	75	18.07	34.63	1.50	24.99	298	0.38
100	16.05	34.76	0.70	2.2	243	100	16.05	34.76	0.70	25.57	243	0.45
155	13.12	34.88	0.23	2.4	174	150	13.27	34.88	0.28	26.27	176	0.56
180	12.80	34.87	0.18	2.6	168	200	12.49	34.86	0.12	26.41	163	0.65
216	12.22	34.86	0.10	2.7	158	250	11.85	34.84	0.08	26.51	153	0.73
274	11.62	34.83	0.07	2.7	150	300	11.40	34.81	0.06	26.58	147	0.81
338	11.00	34.77	0.05	2.8	143	400	10.02	34.71	0.10	26.74	132	0.95
428	9.60	34.69	0.11	2.9	126	500	8.78	34.67	0.13	26.92	115	1.08
506	8.70	34.67	0.13	3.1	114	600	7.29	34.60	0.13	27.08	99	1.19
611	7.12	34.59	0.13	3.2	98	700	6.49	34.58	0.16	27.18	90	1.30
729	6.32	34.58	0.18	3.4	88	800	5.93	34.58	0.16	27.25	83	1.39
864	5.54	34.57	0.13	3.6	79	1000	4.63	34.58	0.29	27.41	68	1.56
968	4.74	34.58	0.23	3.6	69							
1018	4.60	34.58	0.30	3.7	68							

Incident solar radiation: daily T 499 $g.-cal./cm.^2$.

Submarine irradiance and attenuation coefficients at (A) 1415 hr., (B) 1446 hr., (C) 1521 hr.:

	Wire Angle	Wire Out m.	Corrected Output of Detector µa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
(A)	0°	10	809	10		
		20	541	20	10-20	0.0403
		30	348	30	20-30	0.0441
		40	190	40	30-40	0.0605
	0°	50	75.5	50	40-50	0.0923
	0°	60	34.2	60	50-60	0.0792
	3°	70	18.0	70	60-70	0.0642
	6°	80	10.5	80	70-80	0.0539
(B)	0°	10	649	10		
	0°	20	517	20	10-20	0.0227
	0°	30	326	30	20-30	0.0461
	3°	40	160	40	30-40	0.0712
	4°	50	62.9	50	40-50	0.0933
	5°	60	26.5	60	50-60	0.0865
	6°	70	13.6	70	60-70	0.0667
	5°	80	7.14	80	70-80	0.0644
(C)	0°	10	654	10		
	0°	20	453	20	10-20	0.0367
	1°	30	263	30	20-30	0.0544
	0°	40	139	40	30-40	0.0638
	3°	50	59.3	50	40-50	0.0851
	3°	60	25.4	60	50-60	0.0848
	5°	70	10.9	70	60-70	0.0846
	8°	80	5.94	79	70-79	0.0674

Table 2.--Continued

STATION 42 (con.)

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis						
		Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles		Deck Incubator		Neutral Filter	In Situ	
m.	mg./m.^{3}			mg. C/m.^{3}/day		% T.	mg. C/m.^{3}/day	
		Light	Dark	Light	Dark		Light	Dark
0	0.16	1.24	0.209	7.68	-		5.38 6.40	-
10	0.14	0.036	-	1.47	-	56	1.040 1.18	-
25	0.16	0.386	-	0.682	-	35	0.860	-
50	0.51	0.456	-	0.986	-	25.8	0.664 0.700	-
75	0.15	0.290	-	0.610	-	13.4	0.412 0.736	-
100	0.084	0.058	-	0.466	-	3.2	0.304	-
150	0.051	0.170	0.019	-	-	-	0.304	-
200	0.045	-	-	-	-	-	-	-
Water column: 25 mg./m.^{2}		34.0 mg. C/m.^{2}/hr.					100 mg. C/m.^{2}/day	

Phytoplankton haul taken.

Total phosphorus: 0 m., 0.34; 10, 0.54; 25, 0.54; 50, 1.16; 75, 2.00; 100, 2.16; 150, 2.20 µg. at./l.

Zooplankton: N-C N, o to 275 m., 1013 hr. (32'), 91 ml. T, 91 ml. S.
C N (C-B), H at 145 m., 1103 hr. (15'), 43.4 ml. T, 43.4 ml. S; H at 102 m., 1127 hr. (15'), 33.3 ml. T, 33.3 ml. S; H at 50 m., 1149 hr. (15'), 102.9 ml. T, 102.9 ml. S; H at 21 m., 1210 hr. (15'), 57.8 ml. T, 57.8 ml. S; H at 72 m., 1454 hr. (15'), 252.2 ml. T, 252.2 ml. S; H at 37 m., 1515 hr. (15'), 76.5 ml. T, 76.5 ml. S.

STATION 43

STRANGER; February 17-18, 1959; zone +6, 2300-0130; 17°14'N., 101°37'W.; sounding, 800 fm.; wind, 270°, force 3; temp., 81.0°F. dry, 73.0°F. wet; weather, 02; clouds, 4, amt., 1; sea, 1; swell, 280°, 4 ft.; BT slide No. 43.

Incident solar radiation: daily T 499 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 304 m., 2308 hr. (31'), 81 ml. T, 77 ml. S; H at 0 m., 2340 hr. (15'), 115 ml. T, 115 ml. S.

Micronekton: o to 79 m., 0040 hr. (45'), 164 ml. T w/o jellies.

Night-lighting operations.

Table 2.--Continued

STATION 44

STRANGER; February 18, 1959; 1745 G.c.t. (zone +6, 1145); 17°47'N., 103°14'W.; sounding, 1400 fm.; wind, 280°, force 3; temp., 80.0°F. dry, 73.4°F. wet; weather, partly cloudy; sea, moderate; wire angle, 00°; BT slide No. 44A, 44B.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	27.2	33.98	-	-	592	0	27.2	33.98		21.91	592	0.00
6	27.18	33.96	4.45	0.39	593	10	27.12	33.96	4.37	21.92	590	0.06
11	27.10	33.96	4.36	0.37	590	20	25.60	34.12	3.70	22.52	533	0.12
31	23.80	34.30	2.94	1.1	469	30	23.82	34.30	2.95	23.19	469	0.16
51	20.06	34.53	1.19	1.9	353	50	20.10	34.53	1.22	24.39	355	0.25
76	15.96	34.78	0.13	2.5	240	75	16.10	34.75	0.16	25.55	244	0.32
111	13.64	34.85	0.22	2.6	186	100	14.06	34.84	0.23	26.07	195	0.38
166	12.81	34.87	0.09	2.7	168	150	12.92	34.87	0.10	26.32	171	0.47
196	12.56	34.84	0.11	2.7	166	200	12.51	34.84	0.12	26.39	165	0.56
231	12.14	34.83	0.13	2.9	159	250	11.92	34.82	0.13	26.48	156	0.64
309	11.37	34.78	0.13	3.0	149	300	11.45	34.78	0.13	26.55	150	0.72
358	10.92	34.76	0.13	3.0	142	400	10.21	34.71	0.11	26.71	134	0.86
457	9.16	34.63	0.10	3.1	124	500	8.41	34.62	0.11	26.94	113	1.00
547	7.76	34.60	0.12	3.2	105	600	7.23	34.58	0.11	27.07	100	1.11
655	6.80	34.56	0.10	3.4	95	700	6.44	34.55	0.11	27.16	92	1.21
794	5.78	34.54	0.17	3.4	84	800	5.73	34.54	0.17	27.24	83	1.31
929	4.96	34.54	0.20	3.6	74	1000	4.59	34.56	0.24	27.40	69	1.47
1043	4.39	34.56	0.27	3.6	67							
1093	4.18	34.55	0.35	3.6	65							

Incident solar radiation: daily T 511 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1407 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
	10	744	10		
5°	20	381	20	10-20	0.0669
6°	30	137	30	20-30	0.102
6°	40	49.5	40	30-40	0.102
7°	50	21.5	50	40-50	0.0834
14°	60	10.3	58	50-58	0.0920

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark	Neutral Filter % T.
0	0.24	2.086	0.208	28.1	0.466	-
5	0.20	0.164	-	1.78	-	56.1
10	0.20	0.278	-	1.022	-	35
20	0.56	0.264	-	1.27	-	25.8
40	0.59	0.072	-	0.502	-	13.4
60	0.14	0.044	-	0.216	-	3.2
100	0.11	0.060	0.016	-	-	-

Water column: 30 mg./m.^{2} 18.6 mg. C/m.^{2}/hr.

Table 2.--Continued

STATION 44 (con.)

Phytoplankton haul taken.

Total phosphorus: 0 m., 0.60; 5, 0.51; 10, 0.58; 20, 0.85; 40, 1.80; 60, 2.34; 100, 2.47 μg. at./l.

Zooplankton: N-C N, o to 301 m., 1250 hr. (32'), 166 ml. T, 158 ml. S.

STATION 45

STRANGER; February 18-19, 1959; zone +6, 2300-0003; 18°34'N., 104°20'W.; sounding, 900 fm.; wind, 320°, force 5; temp., 76.5°F. dry, 71.0°F. wet; weather, 01; clouds, 2, amt., 1; sea, 3; swell, 320°, 6 ft.; BT slide No. 45.

Incident solar radiation: daily T 511 g.-cal./cm.^{2} .

Biological Data

Zooplankton: o to 317 m., 2307 hr. (32'), 70 ml. T, 52 ml. S; H at 0 m., 2340 hr. (15'), 358 ml. T, 358 ml. S.

STATION 46

STRANGER; February 20, 1959; 0115 G.c.t. (zone +7, 1815, II-19); 19°46.5'N., 105°44'W.; sounding, 950 fm.; wind, 300°, force 4; temp., 76.9°F. dry, 72.1°F. wet; weather, clear; sea, moderate; wire angle, 00°; BT slide No. 46A, 46B.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	24.3	34.49	-	-	470	0	24.3	34.49		23.18	470	0.00
11	23.30	34.47	4.76	0.61	443	10	23.32	34.47		23.46	444	0.04
26	22.83	34.52	3.86	0.84	426	20	23.20	34.48	4.68	23.50	440	0.09
36	19.14	34.56	0.54	2.2	328	30	21.14	34.54	1.79	24.13	380	0.13
51	17.44	34.65	0.26	2.4	282	50	17.50	34.64	0.27	25.14	283	0.20
76	15.51	34.74	0.12	2.7	232	75	15.59	34.74	0.13	25.66	234	0.26
111	13.82	34.81	0.10	2.7	192	100	14.25	34.79	0.10	26.00	202	0.32
166	12.70	34.84	0.08	2.7	169	150	12.94	34.84	0.08	26.30	173	0.41
195	12.26	34.81	0.08	2.7	163	200	12.20	34.81	0.09	26.43	161	0.50
230	11.86	34.82	0.12	2.7	155	250	11.66	34.80	0.11	26.52	152	0.58
309	11.02	34.74	0.08	2.8	146	300	11.13	34.75	0.08	26.58	147	0.66
359	10.56	34.70	0.08	2.9	140	400	9.95	34.66	0.08	26.72	134	0.80
457	9.02	34.62	0.08	3.2	123	500	8.38	34.59	0.11	26.92	115	0.93
546	7.78	34.56	0.12	3.3	108	600	7.23	34.54	0.09	27.04	103	1.04
655	6.76	34.52	0.07	3.4	98	700	6.41	34.52	0.07	27.14	93	1.15
794	5.70	34.53	0.15	3.5	84	800	5.66	34.53	0.15	27.25	83	1.25
928	4.98	34.53	0.17	3.7	75	1000	4.56	34.59	0.21	27.42	67	1.41
1043	4.34	34.60	0.28	3.6	64							
1094	4.15	34.58	0.35	3.6	63							

Incident solar radiation: daily T 496 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1326 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
0°	5	618	5		
0°	10	239	10	5-10	0.190
0°	15	94.5	15	10-15	0.185
0°	20	30.2	20	15-20	0.228
0°	25	11.1	25	20-25	0.200
2-3°	30	4.38	30	25-30	0.186

Table 2.--Continued

STATION 46 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark	Neutral Filter % T.	In Situ mg. C/m.^{3}/day Light	In Situ Dark
0	1.6	11.7	0.070	148.0	-	100	139.0 141.0	-
10	2.2	0.604	-	11.4	-	56	4.74 6.14	-
25	2.5	0.378	-	1.004	-	35	1.52 1.22	-
50	0.36	0.185	-	1.36	-	25.8	0.252 0.216	-
75	0.11	0.043	-	0.844	-	13.4	0.144 0.538	-
100	0.16	0.054	-	2.66	-	3.2	0.126	-
150	-	0.026	0.008	-	-	-	0.144	0.089
200	0.10	-	-	-	-	-	-	-

Water column: 107 mg./m.^{2} 78.6 mg. C/m.^{2}/hr. 952 mg. C/m.^{2}/day

Phytoplankton haul taken.

Total phosphorus: 0 m., 1.21, 1.19; 10, 0.95; 25, 1.07; 50, 2.21; 75, 2.39; 100, 2.50; 150, 2.44 µg. at./l.

Zooplankton: N-C N, o to 303 m., 1239 hr. (32'), 164 ml. T, 164 ml. S; o to 313 m., 2338 hr. (32'), 130 ml. T, 130 ml. S; H at 0 m., 0015 hr. (16'), 514 ml. T, 514 ml. S.
C N (C-B), H at 96 m., 1356 hr. (15'), 668.9 ml. T, 668.9 ml. S; H at 73 m., 1418 hr. (15'), 44.1 ml. T, 44.1 ml. S; H at 49 m., 1438 hr. (15'), 41.9 ml. T, 41.9 ml. S; H at 36 m., 1500 hr. (15'), 308.7 ml. T, 9.3 ml. S; H at 25 m., 1520 hr. (15'), 422.5 ml. T, 171.4 ml. S; H at 14 m., 1539 hr. (15'), 986.9 ml. T, 986.9 ml. S; H at 0 m., 1600 hr. (15'), 2262.7 ml. T, 2262.7 ml. S; H at 101 m., 2110 hr. (15'), 17.7 ml. T, 17.7 ml. S; H at 74 m., 2133 hr. (15'), 380.2 ml. T, 380.2 ml. S; H at 51 m., 2149 hr. (15'), 37.3 ml. T, 37.3 ml. S; H at 36 m., 2215 hr. (15'), 502.2 ml. T, 502.2 ml. S; H at 26 m., 2236 hr. (15'), 262.9 ml. T, 262.9 ml. S; H at 15 m., 2255 hr. (15'), 881.1 ml. T, 842.2 ml. S; H at 0 m., 2315 hr. (15'), 701.9 ml. T, 701.9 ml. S.

Micronekton: o to 73 m., 0048 hr. (52'), 101 ml. T w/o jellies.

Table 2.--Continued

STATION 47

STRANGER; February 20, 1959; 1750 G.c.t. (zone +7, 1050); 20°41'N., 107°10'W.; sounding, 1660 fm.; wind, 360°, force 2; temp., 75.1°F. dry, 69.0°F. wet; weather, partly cloudy; sea, moderate; wire angle, 03°; BT slide No. 47.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	24.6	34.51	-		477	0	24.6	34.51		23.11	477	0.00
11	24.44	34.51	4.63		472	10	24.45	34.51		23.16	472	0.05
25	24.12	34.60	4.66		456	20	24.23	34.56	4.65	23.26	463	0.09
40	23.51	34.77	4.61		427	30	23.98	34.66	4.66	23.41	448	0.14
55	20.82	34.63	3.07		365	50	22.26	34.71	3.86	23.94	397	0.22
75	18.40	34.54	1.97		312	75	18.40	34.54	1.97	24.84	312	0.31
105	15.06	34.69	0.38		226	100	15.53	34.67	0.48	25.62	237	0.38
165	12.70	34.76	0.18		174	150	13.00	34.75	0.20	26.22	181	0.49
196	12.06	34.78	0.15		161	200	12.00	34.78	0.15	26.44	160	0.57
230	11.64	34.78	0.10		154	250	11.42	34.78	0.11	26.54	150	0.65
310	10.72	34.73	0.13		141	300	10.85	34.74	0.12	26.62	143	0.73
359	10.04	34.65	0.10		136	400	9.45	34.62	0.10	26.77	128	0.87
458	8.65	34.60	0.10		118	500	8.12	34.56	0.10	26.93	114	1.00
547	7.55	34.52	0.10		108	600	7.10	34.52	0.09	27.05	102	1.11
657	6.66	34.52	0.08		96	700	6.32	34.52	0.09	27.16	92	1.22
796	5.64	34.52	0.14		84	800	5.61	34.52	0.14	27.24	84	1.31
930	4.90	34.54	0.19		74	1000	4.57	34.55	0.22	27.39	70	1.48
1045	4.37	34.56	0.27		67							
1095	4.14	34.52	0.35		68							

Incident solar radiation: daily T 494 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1250 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector µa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
	10	942	10		
3°	20	624	20	10-20	0.0412
5°	30	440	30	20-30	0.0349
9°	40	275	39	30-39	0.0522
9°	50	168	49	39-49	0.0493
5°	60	81.2	60	49-60	0.0661
6°	70	32.4	70	60-70	0.0919
8°	80	16.4	79	70-79	0.0757

Table 2.--Continued

STATION 47 (con.)

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis				
		Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles		Deck Incubator mg. C/m.^{3}/day		Neutral Filter
m.	mg./m.^{3}	Light	Dark	Light	Dark	% T.
0	0.12	0.147	0.022	1.19	1.81	-
10	0.13	0.031	-	2.58	-	56.1
25	0.19	0.063	-	1.058	-	35
50	0.69	0.061	-	0.592	-	25.8
75	0.29	0.028	-	0.772	-	13.4
100	0.28	0.0176	-	1.094	-	3.2
150	0.15	0.0236	0.028	-	-	-
200	0.13	-	-	-	-	-

Water column: 34 mg./m.^{2} 5.0 mg. C/m.^{2}/hr.

Phytoplankton haul taken.

Total phosphorus: 0 m., 1.00, 0.91; 10, 0.53; 25, 0.72; 50, 0.79; 75, 2.06; 100, 2.47; 150, 2.53 µg. at./l.

Zooplankton: N-C N, o to 297 m., 1205 hr. (32'), 70 ml. T, 60 ml. S.

STATION 48

STRANGER; February 20-21, 1959; zone +7, 2200-0000; 21°36'N., 108°25'W.; sounding, 1580 fm.; wind, 340°, force 2; temp., 73.9°F. dry, 67.4°F. wet; sea, 1; swell, 310°, 6 ft.; BT slide No. 48.

Incident solar radiation: daily T 494 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 312 m., 2208 hr. (32'), 127 ml. T, 121 ml. S; H at 0 m., 2241 hr. (15'), 453 ml. T, 453 ml. S.

Micronekton: o to 83 m., 2307 hr. (46'), 102 ml. T w/o jellies.

Table 2.--Continued

STATION 49

STRANGER; February 21, 1959; 1755 G.c.t. (zone +7, 1055); 22°42'N., 109°50'W.; sounding, 850 fm.; wind, 310°, force 2; temp., 72.7°F. dry, 67.1°F. wet; weather, clear; sea, moderate; wire angle, 06°; BT slide No. 49A, 49B.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	δ_T 10^{-5} cm.^{3}/g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} cm.^{3}/g.	ΔD dyn.m.
0	22.7	34.80	-		403	0	22.7	34.80		23.88	403	0.00
11	22.40	34.83	4.78		393	10	22.42	34.83		23.99	393	0.04
26	22.10	34.89	4.75		380	20	22.20	34.86	4.77	24.07	385	0.08
41	20.82	35.10	4.08		331	30	22.05	34.90	4.74	24.14	378	0.12
61	18.18	34.97	2.13		275	50	19.58	35.05	3.21	24.93	303	0.18
75	15.81	34.76	1.04		238	75	15.81	34.76	1.04	25.62	238	0.25
100	14.75	34.85	0.80		208	100	14.75	34.85	0.80	25.93	208	0.31
150	13.26	34.82	0.42		181	150	13.26	34.82	0.42	26.22	181	0.41
195	12.60	34.82	0.25		168	200	12.52	34.82	0.23	26.36	167	0.50
230	11.95	34.80	0.15		158	250	11.58	34.77	0.13	26.50	154	0.58
310	10.66	34.70	0.15		143	300	10.79	34.70	0.13	26.60	144	0.66
359	10.06	34.69	0.13		134	400	9.59	34.66	0.13	26.78	128	0.80
459	8.90	34.63	0.10		120	500	8.37	34.62	0.09	26.95	112	0.92
548	7.73	34.60	0.09		105	600	7.31	34.57	0.10	27.06	101	1.04
657	6.91	34.54	0.11		98	700	6.57	34.51	0.11	27.12	96	1.14
795	5.83	34.47	0.13		90	800	5.82	34.47	0.13	27.18	90	1.24
929	5.12	34.47	0.18		82	1000	4.59	34.49	0.28	27.34	75	1.42
1043	4.31	34.51	0.35		70							
1093	4.12	34.53	0.35		67							

Submarine irradiance and attenuation coefficients at 1249 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
	10	530	10		
0°	20	263	20	10-20	0.0701
	30	122	30	20-30	0.0768
3°	40	49.4	40	30-40	0.0904
5°	45	17.6	45	40-45	0.206

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis				
		Lab. Incubator mg. C/m.^{3}/hr.		Deck Incubator		Neutral Filter
m.	mg./m.^{3}	at 1,000 ft.-candles		mg. C/m.^{3}/day		% T.
		Light	Dark	Light	Dark	
0	0.38	1.91	0.150	28.9	3.01	
				25.4		
				27.1		
				29.4		
10	0.36	0.180	-	1.58	-	56.1
25	0.38	0.184	-	1.92	-	35
50	0.47	0.098	-	0.896	-	25.8
75	0.11	0.016	-	0.304	-	13.4
100	0.052	0.022	-	-	-	-
150	0.053	0.014	0.012	-	-	-
200	0.081	-	-	-	-	-

Water column: 31 mg./m.^{2} 19.4 mg. C/m.^{2}/hr.

Table 2.--Continued

STATION 49 (con.)

Phytoplankton haul taken.

Total phosphorus: 0 m., 0.71; 10, 0.67; 25, 0.66; 50, 1.64, 2.52; 75, 0.65, 2.32; 100, 2.64; 150, 2.78 μg. at./l.

Zooplankton: N-C N, o to 303 m., 1205 hr. (32'), 72 ml. T, 54 ml. S.

STATION 50

STRANGER; February 21, 1959; zone +7, 2200-2340; 23°40'N., 111°06'W.; sounding, 200 fm.; wind, 320°, force 5; temp., 70.0°F. dry, 64.0°F. wet; weather, 02; sea, 1; swell, 320°, 6 ft.; BT slide No. 50.

Biological Data

Zooplankton: N-C N, o to 145 m., 2204 hr. (15'), 99 ml. T, 66 ml. S; H at 0 m., 2221 hr. (14'), 86 ml. T, 84 ml. S.

Micronekton: o to 94 m., 2245 hr. (50'), 827 ml. T w/o jellies.

STATION 51

STRANGER; February 22, 1959; 2055 G.c.t. (zone +7, 1355); 24°57.5'N., 112°35.5'W.; sounding, 28 fm.; wind, 350°, force 4; temp., 65.5°F. dry, 60.0°F. wet; weather, partly cloudy; sea, rough; wire angle, 00°; BT slide No. 51.

OBSERVED						INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P μg.at./l.	δ_T 10^{-5} $cm.^3/g.$	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	δ_T 10^{-5} $cm.^3/g.$	ΔD dyn.m.
0	19.4	34.38	-		348	0	19.4	34.38		24.46	348	0.00
1	19.40	34.36	5.03		349	10	19.42	34.40	5.11	24.47	347	0.03
6	19.41	34.39	5.17		347	20	19.41	34.38	5.16	24.46	348	0.07
11	19.42	34.40	5.10		347	30	19.32	34.37	4.98	24.48	346	0.10
16	19.44	34.36	5.17		350							
21	19.40	34.38	5.16		348							
26	19.40	34.38	5.10		348							
31	19.29	34.37	4.97		346							
36	19.09	34.34	4.73		344							
41	19.03	34.34	4.68		342							

Incident solar radiation: daily T 322 g.-cal./$cm.^2$.

Submarine irradiance and attenuation coefficients at 1242 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
0°	2	393	2		
0°	5	253	5	2-5	0.147
5°	10	163	10	5-10	0.0878
8°	15	106	15	10-15	0.0862
14°	20	68.9	19	15-19	0.108
13°	25	41.6	24	19-24	0.101
15°	30	26.7	29	24-29	0.0886
17°	40	10.5	39	29-39	0.0934

Table 2.--Continued

STATION 51 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark	Neutral Filter % T.	In Situ mg. C/m.^{3}/day Light	In Situ Dark
0	1.14	4.20	0.080	54.0 60.1 57.6	-	-	46.9 33.4	-
10	0.73	0.196	-	1.51	-	56.1	1.04 0.682	-
25	1.07	-	-	2.82	-	35	1.04 1.44	-
50	1.26	0.212	-	1.99	-	25.8	0.860 0.484	-
75	0.30	0.033	-	0.664	-	13.4	0.144 0.144	-
100	·	0.0204	0.008	0.322	-	3.2	-	-

Water column: 85 ex mg./m.^{2} 33.8 mg. C/m.^{2}/hr. 314 ex mg. C/m.^{2}/day

Phytoplankton haul taken.

Total phosphorus: 0 m., 0.78; 10, 0.89; 25, 0.94; 50, 0.96; 75, 1.82; 100, 2.36 μg. at./l.

Zooplankton: N-C N, H at 0 m., 1213 hr. (15'), 34 ml. T, 34 ml. S.
C N (C-B), H at 52 m., 1350 hr. (15'), 263.0 ml. T, 263.0 ml. S; H at 33 m., 1419 hr. (15'), 50.8 ml. T, 50.8 ml. S; H at 22 m., 1446 hr. (15'), 216.6 ml. T, 126.8 ml. S; H at 0 m., 1506 hr. (15'), 423.8 ml. T, 423.8 ml. S.

STATION 52

STRANGER; February 23, 1959; zone +7, 0321-0339; 25°35'N., 113°45'W.

Biological Data

Zooplankton: N-C N, o to 111 m., 0321 hr. (14'), 36 ml. T, 21 ml. S.

STATION 53

STRANGER; February 23, 1959; zone +7, 0604-0620; 25°35'N., 113°22.5'W.

Biological Data

Zooplankton: N-C N, o to 141 m., 0604 hr. (14'), 24 ml. T, 10 ml. S.

STATION 54

STRANGER; February 23, 1959; zone +7, 0854-0918; 25°54'N., 113°07.5'W.

Biological Data

Zooplankton: N-C N, o to 125 m., 0902 hr. (14'), 74 ml. T, 68 ml. S.

Table 3. Station data. Cruise TO-59-2

STATION T (97.32)[a]

HUGH M. SMITH; August 14, 1959; 0640 G.c.t. (zone +7, 2340, VIII-13); 32°11.5'N., 117°17'W.; sounding, 710 fm.; wind, 030°, force 2; temp., 70.0°F. dry, 65.2°F. wet; weather, cloudy; sea, slight; wire angle, 03°; BT slide No. T.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
374	7.79	34.25	1.70	2.89	24.8		51.6	131							
377	7.79	34.31	0.62	-	-		-	127							
401	7.51	34.28	1.08	2.93	-		55.0	126							
404	7.56	34.32	0.55	-	-		-	123							
407	7.55	34.28	1.00	2.85	31.7		55.0	125							
432	7.30	34.34	0.48	-	-		-	118							
435	7.27	34.34	0.77	2.97	-		60.0	118							
437	7.19	34.33	0.45	-	-		-	117							
462	6.91	34.33	0.34	3.12b)	26.6		65.2	114							
465	6.85	34.34	0.58	-	-		-	112							
468	6.82	34.33	0.58	3.13	28.8		65.8	113							
493	6.58	34.36	0.43	-	-		-	107							
496	6.56	34.36	0.46	3.17	-		70.9	107							
499	6.56	34.38	0.41	-	-		-	105							
523	6.32	34.31u	0.41	3.25	28.6		74.2	-							
526	6.29	34.42	0.41	-	-		-	99							
529	6.26	34.38	0.40	3.05	-		76.0	102							
554	5.96	34.42	0.33	-	-		-	100							
557	6.04	34.37	0.33	3.25	-		79.8	95							
560	6.01	34.38	0.34	-	-		-	99							
584	5.78	34.45	0.31	3.21	-		84.0	90							
587	5.75	34.40	0.33	-	-		-	94							
590	5.72	34.42	0.31	3.25	-		85.1	92							

STATION 1 (130.30)

HUGH M. SMITH; August 16, 1959; 0208 G.c.t. (zone +7, 1908, VIII-15); 26°29'N., 113°29'W.; sounding, 43 fm.; wind, 320°, force 4; temp., 75.1°F. dry, 71.8°F. wet; weather, partly cloudy; sea, moderate; wire angle, 24°; BT slide No. 1A, 1B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.10	34.22	3.44	0.42c)				512	0	(25.10)	(34.22)	(3.44)	(22.74)	(512)	(0.00)
9	25.08	34.27	3.42	0.56				507	10	25.06	34.27	3.42	22.80	507	0.05
28	17.81	34.25	2.97	0.79				319	20	19.40	34.25	3.06	24.36	357	0.09
46	16.13	34.34	1.91	1.25c)				274	30	17.76	34.26	2.93	24.79	317	0.13
69	16.68	34.80	0.48	2.60c)				253	50	16.13	34.40	1.72	25.27	271	0.19

Incident solar radiation: daily T 655 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, 0 to 53.5 m., 2108 hr. (8'), 99 ml. T, 99 ml. S.

Red crabs seen at surface.

a) Test cast.
b) Duplicate value, 3.04 µg. at./l.
c) Duplicate values: 1 m., 0.64; 46, 1.31; 69, 2.76 µg. at./l.

Table 3.--Continued

STATION 2 (130.35)

HUGH M. SMITH; August 16, 1959; 0722 G.c.t. (zone +7, 0022); 26°19'N., 113°52'W.; sounding, 170 fm.; wind, 320°, force 4; temp., 71.1°F. dry, 68.1°F. wet; weather, missing; sea, rough; wire angle, 09°; BT slide No. 2A, 2B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	21.82	34.02	4.91	0.38				436	0	21.82	34.02	4.91	23.54	436	0.00
10	21.60	34.04	4.97	0.38				428	10	21.60	34.04	4.97	23.62	428	0.04
29	17.98	33.94	5.50	0.50				346	20	19.94	34.00	5.23	24.03	389	0.08
49	15.77	33.85	5.26	0.72				302	30	17.90	33.94	5.50	24.50	344	0.12
73	14.74	34.42	1.36	2.43				240	50	15.53	33.86	4.94	25.00	297	0.18
98	14.48	34.56	0.88	2.60				224	75	14.74	34.44	1.30	25.62	238	0.25
122	14.32	34.60	0.60	2.80a)				217	100	14.47	34.56	0.86	25.78	223	0.31
161	13.58	34.60	0.46	2.47a)				203	150	13.83	34.61	0.48	25.94	207	0.42
200	12.80	34.56	0.41	2.80a)				191	200	12.80	34.56	0.41	26.11	191	0.52
250	11.35	34.64	0.41	3.00a)				159	250	11.35	34.64	0.41	26.46	159	0.61

Incident solar radiation: daily T 655 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.066
50	0.21
100	0.13

Water column: 17.0 mg./m.^{2}

Zooplankton: N-C N, o to 59.4 m., 0150 hr. (17'), 69 ml. T, 69 ml. S.

Micronekton: o to 90e m., 0045 hr. (52'), 1205 ml. T w/o jellies.

a) Duplicate values: 122 m., 2.68; 161, 2.87; 200, 2.91; 250, 2.92 µg. at./l.

Table 3.--Continued

STATION 3 (130.40)

HUGH M. SMITH; August 16, 1959; 1300 G.c.t. (zone +7, 0600); 26°11'N., 114°10.5'W.; sounding, 1300 fm.; wind, 330°, force 3; temp., 70.0°F. dry, 67.8°F. wet; weather, cloudy; sea, rough; wire angle, 35°; BT slide No. 3A, 3B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	21.18	33.91	5.12	0.42				426	0	21.18	33.91	5.12	23.64	426	0.00
8	21.20	33.88	5.07	0.41				429	10	21.13	33.88	5.07	23.62	428	0.04
24	20.18	34.05	5.26	0.47a)				391	20	20.43	34.00	5.20	23.90	401	0.08
31	19.72	34.20	5.38	0.35				369	30	19.77	34.20	5.38	24.23	370	0.12
43	18.68	34.05	5.29	0.41a)				354	50	17.28	33.92	5.22	24.64	331	0.19
52	16.83	33.89	5.17	0.47				323	75	13.20	33.83	3.40	25.47	252	0.26
69	14.22	33.86	3.33	1.42				270	100	12.24	34.06	2.18	25.83	218	0.33
82	12.54	33.82	3.42	1.58				240	150	12.34	34.60	0.92	26.23	180	0.43
95	12.48	34.02	2.20	2.10				225	200	11.69	34.63	0.40	26.38	166	0.51
107	11.97b)	34.12	2.16	2.27a)				208	250	11.06	34.66	0.47	26.52	152	0.60
127	11.77b)	34.24	1.41	2.51a)				196	300	10.35	34.61	0.45	26.61	144	0.67
151	12.34b)	34.60	0.91	2.84				180	400	8.44	34.53	0.40	26.86	120	0.81
170	11.99b)	34.66	0.45	2.91a)				169							
204	11.64	34.63	0.40	2.89				165							
243	11.14	34.66	0.48	3.07a)				153							
304	10.28	34.60	0.45	2.83a)				143							
372	8.80	34.51	0.41	3.15				127							
448	7.86	34.57	0.38	2.61a)				109							

Incident solar radiation: daily T 582 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 71.6 m., 0630 hr. (15'), 78 ml. T, 78 ml. S.

STATION 4 (130.45)

HUGH M. SMITH; August 16, 1959; zone +7, 0855-0959; 25°58.5'N., 114°25'W.; sounding, 2000 fm.; wind, 330°, force 2; temp., 73.7°F. dry, 68.9°F. wet; weather, 02; clouds, 6, amt., 3; sea, 5; swell, 330°, 6 ft., 5 sec.; BT slide No. 4A, 4B.

Observations at 0930 (1630 G.c.t.) at 10 m.: temperature, 25.06°C.; salinity, 34.11‰ .

Incident solar radiation: daily T 582 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 71.6 m., 0934 hr. (15'), 31 ml. T, 31 ml. S.

a) Duplicate values: 24 m., 0.40; 43, 0.33; 107, 2.21; 127, 2.58; 170, 3.03; 243, 2.95; 304, 3.07; 448, 3.21 µg. at./l.
b) A much stronger temperature inversion was indicated by the bathythermograph observation obtained at this station one hour before the hydrographic cast.

Table 3.--Continued

STATION 5 (130.50)

HUGH M. SMITH; August 16, 1959; 2045, 2115 G.c.t. (zone +7, 1345, 1415); 25°44.5'N., 114°42.5'W.; sounding, 1950 fm.; wind, 330°, force 3; temp., 73.0°F. dry, 68.5°F. wet; weather, cloudy; sea, very rough; wire angle, 15°, 18°; BT slide No. 5A, 5B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.38	34.15	4.72	0.36a)	0.9	0.0	1.3	525	0	(25.38)	(34.15)	(4.72)	(22.60)	(525)	(0.00)
10	25.35	34.18	4.14	0.41	0.8	0.0	1.1	522	10	25.35	34.18	4.14	22.64	522	0.05
34	20.58	34.11	4.74	0.43	1.6	0.0	1.0	397	20	23.70	34.18	4.33	23.13	475	0.10
44	19.94	34.05	4.69	0.42	1.2	0.0	1.2	385	30	21.35	34.13	4.65	23.76	415	0.15
58	18.36	33.92	5.39	0.44	1.0	0.01	1.2	356	50	19.32	34.00	4.97	24.19	374	0.22
73	16.83	33.83	4.21	0.51	1.1	0.0	1.6	328	75	16.61	33.82	4.13	24.72	323	0.31
96	13.81	33.75	3.32	1.12	-	0.07	7.9	270	100	13.40	33.76	3.14	25.38	261	0.39
115	12.10	33.82	2.44	1.78	22.6	0.01	16.5	232	150	11.82	34.24	1.41	26.05	197	0.50
134	11.67	34.04	1.68	2.21a)	-	-	-	208	200	11.43	34.65	0.23	26.45	159	0.59
162	11.04	34.31	0.96	2.70	-	-	-	178	250	10.98	34.63	0.25	26.52	153	0.67
191	11.50	34.65	0.22	3.04	37.8	0.0	37.1	161	300	10.53	34.61	0.20	26.58	146	0.75
229	11.13	-	0.29	2.99a)	-	-	-	-	400	8.43	34.51	0.32	26.85	121	0.89
258	10.92	34.63	0.24	3.06	-	-	-	152	500	7.31	34.46	0.22	26.97	110	1.01
306	10.43	34.61	0.19	3.12	52.9	0.0	41.3	145	600	6.38	34.45	0.20	27.09	98	1.12
368	8.88	34.54	0.34	3.15	-	-	-	126							
465	7.64	34.47	0.26	3.21	-	0.0	60.7	114							
551	6.86	34.45	0.21	3.17a)	-	-	-	104							
625	6.13	34.45	0.19	3.41	-	0.0	79.4	95							

Incident solar radiation: daily T 582 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark
0	0.055	0.042	0.002	1.10	0.074
		0.056	0.007	1.16	
		0.047	0.002		
10	0.058	-	-	-	-
25	0.034	-	-	-	-
50	0.098	-	-	-	-
75	0.071	-	-	-	-
100	0.038	-	-	-	-
125	0.047	-	-	-	-
150	0.045	-	-	-	-

Water column: 6.6 mg./m.^{2}

Zooplankton: N-C N, o to 69.0 m., 1544 hr. (15'), 37 ml. T, 37 ml. S.

a) Duplicate values: 1 m., 0.42; 134, 2.13; 229, 3.11; 551, 3.43 µg. at./l.

able 3.--Continued

STATION 6 (130.55)

IUGH M. SMITH; August 16, 1959; zone +7, 1811-1904; 25°39'N., 115°04.5'W.; sounding, 2050 fm.; wind, 330°, force 1; temp., 2.5°F. dry, 68.0°F. wet; weather, 02; clouds, 4, 5, amt., 6; sea, 4; swell, 330°, 5 ft., 5 sec.; BT slide No. 6A, 6B.

Observations at 1840 (0140 G.c.t., VIII-17) at 10 m.: temperature, 25.36°C.; salinity, 34.18‰.

ncident solar radiation: daily T 582 g.-cal./cm.^{2}.

Biological Data

Zooplankton: N-C N, o to 75.6 m., 1845 hr. (15'), 27 ml. T, 27 ml. S.

STATION 7 (130.60)

IUGH M. SMITH; August 17, 1959; 0550 G.c.t. (zone +7, 2250, VIII-16); 25°35'N., 115°27.5'W.; sounding, 2050 fm.; wind, 350°, orce 4; temp., 73.0°F. dry, 69.7°F. wet; weather, partly cloudy; sea, rough; wire angle, 07°; BT slide No. 7A, 7B.

OBSERVED									INTERPOLATED				COMPUTED		
epth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	25.32	34.10	4.47	0.38				527	0	25.32	34.10	4.47	22.58	527	0.00
10	25.34	34.14	4.40	0.39				525	10	25.34	34.14	4.40	22.61	525	0.05
30	20.40	33.84	5.33	0.44				412	20	25.35	34.15	4.40	22.62	524	0.10
39	19.00	33.82	5.48	0.43				378	30	20.40	33.84	5.33	23.79	412	0.15
55	17.24	33.77	5.29	0.52				341	50	17.77	33.78	5.37	24.42	352	0.23
68	16.03	33.82	4.91	0.63				311	75	15.20	33.80	4.49	25.02	294	0.31
93	13.04	33.75	3.40	1.52				255	100	12.59	33.84	2.96	25.59	240	0.38
112	11.88	33.95	2.34	2.07				219	150	10.92	34.15	1.81	26.14	188	0.48
132	11.39	34.09	1.79	2.38a)				200	200	10.76	34.43	0.83	26.40	164	0.57
152	10.87	34.16	1.79	2.64				186	250	10.16	34.51	0.64	26.56	148	0.65
181	10.94	34.36	1.01	2.84				172	300	9.55	34.49	0.49	26.65	140	0.73
214	10.64	34.63u	0.72	3.04a)				-	400	8.35	34.46	0.32	26.82	124	0.87
245	10.22	34.51	0.64	3.04				149	500	7.16	34.42	0.20	26.96	110	0.99
293	9.62	34.49	0.52	3.07				141	600	6.16	34.43	0.22	27.10	97	1.10
347	9.02	34.47	0.29	3.18a)				134							
432	7.94	34.45	0.34	3.30				119							
515	7.00	34.42	0.19	3.34a)				108							
600	6.16	34.43	0.22	3.42a)				97							

ncident solar radiation: daily T 582 g.-cal./cm.^{2}.

Biological Data

Zooplankton: N-C N, o to 74.2 m., 2210 hr. (15'), 54 ml. T, 54 ml. S.

a) Duplicate values: 132 m., 2.46; 214, 2.92; 347, 3.26; 515, 3.42; 600, 3.34 µg. at./l.

Table 3.--Continued

STATION 8 (130.65)

HUGH M. SMITH; August 17, 1959; zone +7, 0041-0323; 25°19'N., 115°43'W.; sounding, 2050 fm.; wind, 350°, force 1; temp., 73.9°F. dry, 68.8°F. wet; weather, 02; clouds, 8, amt., 6; sea, 4; swell, 350°, 4 ft., 5 sec.; BT slide No. 8A, 8B.

Observations at 1001 G.c.t. (zone +7, 0301) at 10 m.: temperature, 25.24°C.; salinity, 34.18‰.

Incident solar radiation: daily T 582 g.-cal./cm.^{2}.

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.034
50	0.13
100	0.048

Water column: 11 mg./m.^{2}

Zooplankton: N-C N, o to 73.8 m., 0220 hr. (14'), 102 ml. T, 102 ml. S.

Micronekton: o to 90e m., 0047 hr. (48'), 2465 ml. T w/o jellies.

STATION 9 (130.70)

HUGH M. SMITH; August 17, 1959; 1335 G.c.t. (zone +7, 0635); 25°08.5'N., 116°04'W.; sounding, 2100 fm.; wind, 330°, force 4; temp., 72.8°F. dry, 67.7°F. wet; weather, partly cloudy; sea, rough; wire angle, 20°; BT slide No. 9A, 9B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	25.10	34.13	4.66	0.36				518	0	25.10	34.13	4.66	22.67	518	0.00
9	25.13	34.11	4.55	0.37				520	10	25.13	34.11	4.55	22.66	520	0.05
32	19.66	33.90	5.17	0.40				389	20	24.02	34.04	4.66	22.93	494	0.10
41	19.24	34.02	5.15	0.38				370	30	20.17	33.90	5.10	23.90	402	0.15
54	16.90	33.78	5.29	0.50				332	50	17.62	33.85	5.26	24.50	344	0.22
68	14.83	33.78	4.52	0.85				288	75	13.95	33.80	3.95	25.29	269	0.30
90	12.80	33.86	3.02	1.64				243	100	12.37	33.93	2.43	25.70	230	0.36
107	12.11	33.98	2.01	2.17				221	150	11.22	34.32	1.46	26.22	180	0.47
125	11.66	34.09	1.80	2.16				205	200	11.22	34.61	0.47	26.46	158	0.55
151	11.21	34.33	1.44	2.60				179	250	10.65	34.63	0.26	26.57	148	0.63
177	11.48	34.60	0.53	2.89a)				164	300	9.85	34.59	0.31	26.68	137	0.71
212	11.02	34.61	0.43	3.06a)				156	400	8.50	34.50	0.31	26.83	123	0.84
239	10.80	34.63	0.27	3.02				150	500	7.22	34.44	0.29	26.97	110	0.96
284	10.08	34.60	0.31	3.04				140	600	(6.38)	(34.46)	(0.17)	(27.10)	(97)	(1.07)
343	9.24	34.56	0.31	2.88				130							
436	8.02	34.47	0.31	3.30a)				119							
520	6.99	34.53u	0.27	3.35				-							
593	6.42	34.46	0.17	3.51a)				98							

Incident solar radiation: daily T 563 g.-cal./cm.^{2}.

Biological Data

Zooplankton: N-C N, o to 52.4 m., 0704 hr. (17'), 107 ml. T, 107 ml. S.

a) Duplicate values: 177 m., 2.76; 212, 2.88; 436, 3.20; 593, 3.37 µg. at./l.

Table 3.--Continued

STATION 10 (133.70)

HUGH M. SMITH; August 17, 1959; 2047 G.c.t. (zone +7, 1347); 24°31'N., 115°45'W.; sounding, 2100 fm.; wind, 360°, force 4; temp., 73.2°F. dry, 69.9°F. wet; weather, cloudy; sea, rough; wire angle, 16°; BT slide No. 10A, 10B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.34	34.11	4.64	0.42				527	0	(25.34)	(34.11)	(4.64)	(22.58)	(527)	(0.00)
10	25.33	34.14	4.60	0.42				524	10	25.33	34.14	4.60	22.61	524	0.05
29	21.57	33.92	5.39	0.46a)				436	20	25.32	34.19	4.61	22.65	521	0.10
39	18.00	33.89	5.60	0.68				350	30	21.40	33.92	5.40	23.58	432	0.15
52	15.81	33.82	4.86	0.82				306	50	15.98	33.82	4.94	24.87	309	0.23
66	14.13	33.82	3.92	1.63a)				271	75	13.02	33.86	3.19	25.52	247	0.30
89	12.26	33.96	2.51	2.09				225	100	11.98	34.02	2.43	25.86	215	0.36
107	11.36	34.00	2.34	2.54a)				206	150	11.27	34.47	1.00	26.33	170	0.45
126	11.62	34.27	1.37	2.41a)				191	200	10.69	34.57	0.67	26.51	153	0.54
144	11.33	34.47	1.10	2.77a)				171	250	9.88	34.51	0.50	26.61	144	0.61
172	11.04	34.45	0.79	2.85				168	300	9.42	34.52	0.38	26.70	135	0.68
206	10.60	34.58	0.64	3.12a)				150	400	8.06	34.47	0.37	26.86	120	0.82
233	10.03	34.51	0.58	3.01a)				147	500	6.92	34.43	0.25	27.01	106	0.94
281	9.60	34.52	0.38	3.15				138							
335	9.02	34.53	0.40	3.18a)				129							
417	7.82	34.45	0.34	3.28				117							
502	6.90	34.43	0.24	3.73a)				106							

Incident solar radiation: daily T 563 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark
0	0.059	0.131	0.023	0.954	0.038
		0.220	0.016	1.20	
		0.164	0.007		
10	0.030	-	-	-	-
25	0.033	-	-	-	-
50	0.14	-	-	-	-
75	0.068	-	-	-	-
100	0.045	-	-	-	-
125	0.043	-	-	-	-
150	0.026	-	-	-	-

Water column: 7.5 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 62.8 m., 1154 hr. (20'), 63 ml. T, 63 ml. S.

a) Duplicate values: 29 m., 0.52; 66, 1.19; 107, 2.22; 126, 2.54; 144, 2.89; 206, 2.85; 233, 3.12; 335, 3.12; 502, 3.24 µg. at./l.

STATION 11 (133.65)

HUGH M. SMITH; August 17, 1959; zone +7, 1750-1803; 24°44.5'N., 115°23.5'W.; sounding, 2000 fm.; wind, 350°, force 2; temp., 76.0°F. dry, 70.8°F. wet; weather, 02; clouds, 6, amt., 5; sea, 4; swell, 350°, 4 ft., 5 sec.; BT slide No. 11A, 11B.[a)]

Incident solar radiation: daily T 563 g.-cal./cm.^{2} .

STATION 12 (133.60)

HUGH M. SMITH; August 18, 1959; 0432 G.c.t. (zone +7, 2132, VIII-17); 24°55'N., 115°02'W.; sounding, 1970 fm.; wind, 340°, force 4; temp., 74.7°F. dry, 70.2°F. wet; weather, partly cloudy; sea, rough; wire angle, 16°; BT slide No. 12A, 12B.

OBSERVED								INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg at./l.	NO_3-N µg at./l.	NO_2-N µg at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.16	34.05	3.97	0.41				526	0	(25.16)	(34.05)	(3.97)	(22.59)	(526)	(0.00)
10	25.17	34.11	4.09	0.42b)				521	10	25.17	34.11	4.09	22.65	521	0.05
30	20.86	34.07	4.30	0.42				407	20	24.60	34.13	4.13	22.83	504	0.10
39	19.90	33.98	4.33	0.42				389	30	20.86	34.07	4.30	23.84	407	0.15
53	18.60	33.91	4.40	0.43				362	50	18.83	33.92	4.39	24.26	368	0.23
68	17.90	33.96	4.47	0.46b)				342	75	17.84	33.99	4.44	24.56	339	0.31
92	16.84	33.96	4.17	0.54				318	100	16.35	33.94	4.10	24.87	309	0.40
112	14.36	33.86	3.80	0.92				273	150	11.31	33.85	3.10	25.85	216	0.53
130	12.80	33.82	3.08	1.55				246	200	11.16	34.41	1.08	26.31	172	0.63
149	11.32	33.84	3.14	1.93				217	250	10.35	34.54	0.90	26.56	149	0.71
179	11.44	34.27	1.49	2.71b)				188	300	9.38	34.50	0.62	26.69	136	0.78
212	10.98	34.47	0.93	2.77				165	400	8.12	34.49	0.48	26.88	118	0.92
242	10.50	34.54	0.93	2.85				151	500	7.15	34.51	0.37	27.03	104	1.03
289	9.58	34.52	0.64	2.59b)				138	600	(6.17)	(34.52)	(0.36)	(27.17)	(90)	(1.14)
343	8.67	34.44	0.53	2.31				130							
426	7.87	34.51	0.45	2.53b)				113							
509	7.06	34.51	0.36	3.15				102							
593	6.24	34.52	0.36	3.43				91							

Incident solar radiation: daily T 563 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 105.2 m., 2037 hr. (13'), 48 ml. T, 48 ml. S.

STATION 13 (133.55)

HUGH M. SMITH; August 18, 1959; zone +7, 0006-0230; 25°06.5'N., 114°43'W.; sounding, 1850 fm.; wind, 350°, force 2; temp., 74.5°F. dry, 70.0°F. wet; weather, 02; clouds, 6, amt., 5; sea, 5; swell, 350°, 7 ft., 6 sec.; BT slide No. 13A, 13B.

Observations at 0215 (0915 G.c.t.) at 10 m.: temperature, 25.06°C.; salinity, 34.14‰ .

Incident solar radiation: daily T 614 g.-cal./cm.^{2} .

a) BT observations only; insufficient time to obtain hydrographic and biological data.
b) Duplicate values: 10 m., 0.34; 68, 0.29; 179, 2.56; 289, 2.91; 426, 2.44 µg. at./l.

Table 3.--Continued

STATION 13 (133.55) (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.036
50	0.067
100	0.25

Water column: 8.8 mg./m.^{2}

Zooplankton: N-C N, o to 71.4 m., 0122 hr. (18'), 41 ml. T, 41 ml. S.

Micronekton: o to 115 m., 0017 hr. (49'), 746 ml. T w/o jellies.

STATION 14 (133.50)

HUGH M. SMITH; August 18, 1959; 1250 G.c.t. (zone +7, 0550); 25°21'N., 114°26.5'W.; sounding, 1300 fm.; wind, 340°, force 4; temp., 73.9°F. dry, 69.9°F. wet; weather, partly cloudy; sea, rough; wire angle, 15°; BT slide No. 14A, 14B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	24.82	34.13	4.54	0.40				510	0	(24.82)	(34.13)	(4.54)	(22.76)	(510)	(0.00)
10	24.85	34.11	4.52	0.39				512	10	24.85	34.11	4.52	22.74	512	0.05
29	20.82	34.04	5.14	0.38				408	20	22.20	34.07	4.96	23.47	442	0.10
38	20.10	34.00	4.95	0.41				392	30	20.73	34.04	5.13	23.86	406	0.14
53	19.52	34.04	5.02	0.42a)				375	50	19.67	34.03	5.01	24.13	379	0.22
66	18.63	33.98	4.98	0.44				358	75	18.00	33.94	4.90	24.48	346	0.31
90	16.88	33.89	4.84	0.75a)				324	100	15.50	33.84	4.43	24.98	298	0.39
108	14.38	33.80	3.92	1.00a)				277	150	11.85	34.04	2.27	25.90	212	0.52
127	12.57	33.76	3.54	1.38				245	200	11.00	34.42	1.13	26.34	169	0.62
145	11.96	33.99	2.44	2.16a)				217	250	10.60	34.56	0.60	26.53	152	0.70
173	11.50	34.25	1.61	2.58a)				190	300	9.69	34.53	0.55	26.66	139	0.78
205	10.91	34.44	1.07	2.77				166	400	8.42	34.54	0.34	26.86	120	0.91
233	10.8b)	34.56	0.60	2.86a)				155	500	7.29	34.49	0.43	27.00	107	1.03
280	9.84	34.49	0.65	3.10a)				145							
341	9.34	34.61	0.34	3.18a)				128							
413	8.23	34.52	0.34	3.38a)				118							
494	7.32	34.49	0.43	3.12a)				107							
577	6.78	34.47	0.27	3.34a)				101							

a) Duplicate values: 53 m., 0.36; 90, 0.51; 108, 0.94; 145, 2.05; 173, 2.47; 233, 2.79; 280, 3.18; 341, 2.86; 413, 3.18; 494, 3.30; 577, 3.46 µg. at./l.

b) Both protected thermometers at this level malfunctioned. Since an acceptable depth value was obtained, the temperature value was determined by calculation, using the unprotected thermometer reading.

Table 3.--Continued

STATION 14 (133.50) (con.)

Incident solar radiation: daily T 614 g.-cal. cm.$^{-2}$.

Biological Data

Zooplankton: N-C N, o to 105.6 m., 0615 hr. (18'), 104 ml. T, 104 ml. S.

STATION 15 (133.45)

HUGH M. SMITH; August 18, 1959; zone +7, 0841-0925; 25°24.5'N., 114°05'W.; sounding, 1800 fm.; wind, 340°, force 1; temp., 73.0°F. dry, 67.9°F. wet; weather, 02; clouds, 6, amt., 2; sea, 4; swell, 350°, 5 ft., 6 sec.; BT slide No. 15A, 15B.

Observations at 0920 (1620 G.c.t.) at 10 m.: temperature, 23.68°C.; salinity, 34.03‰.

Incident solar radiation: daily T 614 g.-cal. cm.$^{-2}$.

Biological Data

Zooplankton: N-C N, o to 103.8 m., 0845 hr. (18'), 27 ml. T, 27 ml. S.

STATION 16 (133.40)

HUGH M. SMITH; August 18, 1959; 1925 G.c.t. (zone +7, 1225); 25°35'N., 113°44'W.; sounding, 1495 fm.; wind, 330°, force 4; temp., 71.9°F. dry, 68.0°F. wet; weather, clear; sea, rough; wire angle, 26°; BT slide No. 16A, 16B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth, m.	T. °C.	S. ‰	O_2 ml. l	PO_4-P µg.at. l.	NO_3-N µg.at. l.	NO_2-N µg.at. l.	SiO_3 µg.at. l.	$\delta_{-5}T_3$ 10cm. g.	Depth m.	T. °C.	S. ‰	O_2 ml. l.	σ_t g. l.	$\delta_{-5}T_3$ 10cm. g.	ΔD dyn.m.
1	22.66	33.96	4.88	0.41	0.3	0.0	1.7	462	0	(22.66)	(33.96)	(4.88)	(23.26)	(462)	(0.00)
9	22.64	33.93	4.64	0.45	0.3	0.0	1.7	464	10	22.48	33.93	4.62	23.30	459	0.05
27	19.92	34.11	5.24	0.40	-	-	-	380	20	20.38	34.09	5.16	23.99	393	0.09
35	19.21	34.04	5.15	0.47a)	0.3	0.0	1.2	368	30	19.70	34.09	5.22	24.17	376	0.13
49	18.12	33.94	5.22	0.43	0.2	0.0	-	349	50	18.08	33.94	5.22	24.47	347	0.20
61	16.30	33.95	5.00	0.82a)	0.4	0.0	2.2	307	75	14.37	33.86	4.34	25.25	273	0.28
82	13.79	33.84	4.07	1.15	10.2	0.0	7.7	263	100	13.08	34.18	1.34	25.75	225	0.34
97	13.28	34.20	1.46	2.49	28.0	trace	25.2	227	150	12.84	34.64	0.27	26.17	186	0.45
113	13.49	34.36	0.91	2.55a)	-	trace	30.2	219	200	11.43	34.60	0.13	26.40	164	0.54
130	13.16	34.47	0.67	3.02a)	-	0.0	-	204	250	10.28	34.54	0.65	26.56	148	0.62
153	12.78	34.65	0.22	2.88a)	-	0.0	33.5	184	300	9.82	34.55	0.62	26.65	140	0.69
181	11.26b)	34.48	1.65	2.63a)	-	-	-	169	400	8.54	34.52	0.43	26.84	122	0.83
204	11.42	34.61	0.12	3.10a)	-	-	-	163	500	7.04	34.51	0.37	27.05	102	0.94
244	10.38	34.54	0.65	3.10	34.0	0.0	-	149							
291	9.90	34.54	0.64	2.98	-	-	-	142							
359	9.18	34.53	0.43	3.27a)	34.4	0.0	46.0	131							
438	7.92	34.51	0.43	3.18	-	-	-	114							
517	6.80	34.51	0.36	3.22	-	0.0	69.4	99							

Incident solar radiation: daily T 614 g.-cal. cm.$^{-2}$

a) Duplicate values: 35 m., 0.34; 61, 0.58; 113, 2.71; 130, 2.64; 153, 2.62; 181, 287; 204, 3.30; 359, 3.18 µg. at./l.
b) Mean value of 11.21 and 11.32°C.

Table 3.--Continued

STATION 16 (133.40) (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark
0	0.080	0.342	0.011	3.43	0.168
		0.258	0.015	1.52	
		0.318	0.019		
10	0.12	-	-	-	-
25	0.092	-	-	-	-
50	0.13	-	-	-	-
75	0.28	-	-	-	-
100	0.15	-	-	-	-
125	0.12	-	-	-	-
150	0.103	-	-	-	-

Water column: 16 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 74.2 m., 1327 hr. (13'), 42 ml. T, 42 ml. S.

STATION 17 (133.35)

HUGH M. SMITH; August 18, 1959; zone +7, 1940-2024; 25°47'N., 113°26'W.; sounding, 300 fm.; wind, 340°, force 2; temp., 73.4°F. dry, 69.8°F. wet; weather, 02; clouds, 0, amt., 1; sea, 4; swell, 340°, 5 ft., 5 sec.; BT slide No. 17A, 17B.

Observations at 1940 (0240 G.c.t.) at 10 m.: temperature, 22.94°C.; salinity, 33.97‰.

Incident solar radiation: 614 g.-cal./cm.^{2}.

Biological Data

Zooplankton: N-C N, o to 76.0 m., 2004 hr. (13'), 141 ml. T, 141 ml. S.

STATION 18 (133.30)

HUGH M. SMITH; August 19, 1959; 0555 G.c.t. (zone +7, 2255, VIII-18); 25°56'N., 113°07'W.; sounding, 85 fm.; wind, 290°, force 3; temp., 75.0°F. dry, 70.8°F. wet; weather, partly cloudy; sea, rough; wire angle, 11°; BT slide No. 18A, 18B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	24.88	34.24	4.64	0.37a)				504	0	(24.88)	(34.24)	(4.64)	(22.83)	(504)	(0.00)
10	24.89	34.22	4.57	0.54				505	10	24.89	34.22	4.57	22.81	505	0.05
30	16.22	33.80	5.48	0.58				316	20	23.90	34.16	4.66	23.05	482	0.10
49	15.30	34.29	2.46	1.72a)				260	30	16.22	33.80	5.48	24.79	316	0.14
73	15.24	34.67	1.12	2.69a)				232	50	15.30	34.30	2.44	25.39	260	0.20
98	14.49	34.81	0.52	3.31a)				206	75	15.23	34.70	1.04	25.71	229	0.26
122	13.84	34.70	0.62	2.66a)				201	100	14.35	34.79	0.55	25.98	204	0.31

a) Duplicate values: 1 m., 0.50; 49, 1.96; 73, 2.32; 98, 3.09; 122, 2.91 µg. at./l.

Table 3.--Continued

STATION 18 (133.30) (con.)

Incident solar radiation: daily T 614 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 83.4 m., 2308 hr. (16'), 210 ml. T, 210 ml. S.

STATION 19 (133.25)

HUGH M. SMITH; August 19, 1959; 0908 G.c.t. (zone +7, 0208); 26°05'N., 112°48.5'W.; sounding, 41 fm.; wind, 320°, force 2; temp., 76.5°F. dry, 70.1°F. wet; weather, partly cloudy; sea, moderate; wire angle, 00°; BT slide No. 19A, 19B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg at./l.	NO_3-N µg at./l.	NO_2-N µg at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	25.06	34.16	4.81	0.51				515	0	25.06	34.16	4.81	22.71	515	0.00
10	24.84	34.16	4.90	0.51				509	10	24.84	34.16	4.90	22.78	509	0.05
29	17.24	33.81	5.84	0.40				338	20	18.28	33.83	5.81	24.33	360	0.09
49	15.57	34.00	4.16	1.20				288	30	17.12	33.81	5.81	24.60	335	0.13
									50	(15.49)	(34.01)		(25.12)	(285)	(0.19)

Incident solar radiation: daily T 640 g.-cal./cm.^{2} .

STATION 20 (134.36)

HUGH M. SMITH; August 19, 1959; 1800 G.c.t. (zone +7, 1100); 25°34.5'N., 113°22.5'W.; sounding, 92 fm.; wind, 340°, force 3; temp., 74.0°F. dry, 69.9°F. wet; weather, partly cloudy; sea, moderate; wire angle, 08°; BT slide No. 20A.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg at/l	NO_3-N µg at./l	NO_2-N µg at/l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	22.86	33.94	5.00	0.43	1.2	0.01	1.7	469	0	22.86	33.94	5.00	23.19	469	0.00
9	21.82	33.94	5.19	0.44	0.4	0.0	1.8	441	10	21.30	33.94	5.23	23.63	427	0.04
29	18.32	33.95	5.48	0.43a)	0.4	0.0	1.2	353	20	19.63	33.95	5.39	24.08	384	0.08
49	16.64	33.91	5.14	0.53	0.4	0.0	1.9	317	30	18.30	33.95	5.47	24.42	352	0.12
73	14.34	33.85	4.26	1.01	9.0	0.09	6.2	273	50	16.63	33.91	5.13	24.79	317	0.19
98	13.58	34.11	2.23	2.09	23.4	0.03	18.8	238	75	14.30	33.85	4.23	25.26	272	0.26
123	12.48	34.47	1.19	2.63	34.0	0.01	29.5	192	100	13.38	34.16	1.98	25.69	231	0.33

Incident solar radiation: daily T 640 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1430-1500 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µg.	m.	m.	k
5°	5	736	5		
12°	10	549	10	5-10	0.0586
22°	20	367	18	10-18	0.0504
28°	30	230	26	18-26	0.0584
32°	40	166	34	26-34	0.0408
43°	50	139	36	34-36	0.0890

a) Duplicate value, 0.53 µg. at./l.

Table 3.--Continued

STATION 20 (134.36) (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark	In Situ mg. C/m.^{3}/day Light	In Situ Dark
0	0.108	0.098	0.003	0.542	-	1.44	0.-
				0.450		3.76	
				0.392			
5	0.093	0.009	-	-	-	0.187	0.037
						1.03	0.055
10	0.083	-	-	-	-		
20	0.074	0.035	-	-	-	0.562	-
30	0.069	0.037	-	-	-	0.392	-
40	0.087	0.017	-	-	-	0.112	-
						0.224	
60	0.084	0.011	-	-	-	0.131	-
						0.150	
80	0.104	0.009	-	-	-	0.0562	-
						0.0562	
100	-	0.061	-	-	-	0.0562	-
						0.0748	
125	-	0.0046	0.015	-	-	0.0188	0.019
						0.0374	0.037
Water column:	9.1 mg./m.^{2}	1.8 mg. C/m.^{2}/hr.				33.6 mg. C/m.^{2}/day	

Phytoplankton haul taken.

Zooplankton: N-C N, o to 77.0 m., 1730 hr. (17'), 50 ml. T, 50 ml. S.

Red crabs seen at surface.

STATION 21 (137.40)

HUGH M. SMITH; August 20, 1959; 0843 G.c.t. (zone +7, 0143); 25°00'N., 113°24'W.; sounding, 1700 fm.; wind, 360°, force 3; temp., 77.0°F. dry, 75.2°F. wet; weather, partly cloudy; sea, rough; wire angle, 04°; BT slide No. 21A, 21B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	23.79	34.13	4.69	0.42				481	0	23.79	34.13	4.69	23.06	481	0.00
10	23.67	34.13	4.90	0.36				477	10	23.67	34.13	4.90	23.11	477	0.05
30	20.03	34.12	5.22	0.35				382	20	21.28	34.12	5.18	23.77	414	0.09
40	19.40	34.14	5.24	0.38				365	30	20.03	34.12	5.22	24.10	382	0.13
54	17.90	33.93	5.15	0.44				344	50	18.37	33.99	5.19	24.43	351	0.20
69	15.94	33.91	4.76	0.74				302	75	14.99	33.98	3.24	25.20	277	0.28
94	16.14	34.78	1.08	2.54				243	100	16.06	34.85	0.97	25.63	236	0.35
114	15.51	34.93	0.84	2.77a)				218	150	13.58	34.87	0.56	26.20	183	0.46
133	14.14	34.88	0.57	2.83a)				193	200	11.64	34.65	0.51	26.41	163	0.54
153	13.44	34.86	0.57	2.99a)				181	250	11.08	34.70	0.26	26.55	150	0.62
182	11.80	34.58	0.81	2.52a)				171	300	10.38	34.66	0.23	26.65	140	0.70
217	11.66	34.73	0.29	3.05a)				158	400	8.69	34.55	0.47	26.84	122	0.84
247	11.13	34.70	0.27	2.91				150	500	7.28	34.49	0.35	27.00	106	0.95
296	10.47	34.67	0.21	3.27a)				141	600	6.16	34.47	0.40	27.14	94	1.06
350	9.30	34.52	0.45	3.07				134							
434	8.26	34.57	0.45	3.37				115							
518	7.02	34.48	0.34	3.43a)				104							
602	6.14	34.47	0.40	3.47a)				94							

a) Duplicate values: 114 m., 2.70; 133, 2.73; 153, 3.27; 182, 2.72; 217, 2.92; 296, 3.05; 518, 3.23; 602, 3.96 µg. at./l.

Table 3.--Continued

STATION 21 (137.40) (con.)

Incident solar radiation: daily T 504 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.085
50	0.107
100	0.12

Water column: 11 mg./m.^{2}

Zooplankton: N-C N, o to 115.1 m., 2330 hr. (13'), 47 ml. T, 47 ml. S.

Micronekton: o to 85 m., 0001 hr. (49'), 915 ml. T w/o jellies.

STATION 22 (137.45)

HUGH M. SMITH; August 20, 1959; zone +7, 0426-0540; 24°54'N., 113°48'W.; sounding, 580 fm.; wind, 360°, force 2; temp., 74.0°F. dry, 71.5°F. wet; weather, 02; clouds, 6, amt., 6; sea, 4; swell, 360°, 5 ft., 5 sec.; BT slide No. 22A, 22B.

Observations at 0440 (1140 G.c.t.) at 10 m.: temperature, 22.72°C.; salinity, 33.99‰ .

Incident solar radiation: daily T 504 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 68.4 m., 0512 hr. (18'), 36 ml. T, 36 ml. S.

Table 3.--Continued

STATION 23 (137.50)

UGH M. SMITH; August 20, 1959; 1605 G.c.t. (zone +7, 0905); 24°40'N., 114°02'W.; sounding, 2050 fm.; wind, 020°, force 3; emp., 75.2°F. dry, 72.8°F. wet; weather, cloudy; sea, high; wire angle, 08°; BT slide No. 23A, 23B.

OBSERVED									INTERPOLATED				COMPUTED		
epth	T.	S.	O_2	PO_4-P	NO_3-N	NO_2-N	SiO_3	$\delta_{-5}T_3$	Depth	T.	S.	O_2	σ_t	$\delta_{-5}T_3$	ΔD
m.	°C.	‰	ml/l.	μg.at./l.	μg.at./l.	μg.at./l.	μg.at./l.	10cm/g.	m.	°C.	‰	ml/l.	g./l.	10cm/g.	dyn.m.
2	23.04	33.99a)	4.60	0.44				470	0	(23.04)	(33.99)	(4.60)	(23.18)	(470)	(0.00)
11	22.96	33.96	4.50	0.38b)				470	10	22.97	33.96	4.50	23.18	470	0.05
30	19.72	34.00	5.02	0.47				383	20	22.30	33.96	4.60	23.37	452	0.09
40	19.42	34.05	4.83	0.45				372	30	19.72	34.00	5.02	24.09	383	0.13
56	18.29	34.00	4.76	0.53b)				348	50	18.92	34.03	4.77	24.33	361	0.21
69	16.62	33.91	4.64	0.59				317	75	15.86	33.90	4.49	24.96	301	0.29
94	13.70	33.91	3.26	1.43				256	100	13.32	33.94	2.77	25.53	246	0.36
113	12.94	34.13	1.51	2.32				225	150	12.90	34.51	0.45	26.06	196	0.47
133	12.91	34.43	0.43	2.83b)				203	200	12.16	34.69	0.38	26.34	170	0.56
152	12.88	34.53	0.45	3.12b)				195	250	11.80	34.79	0.22	26.49	155	0.65
180	12.42	34.68	0.33	3.00				176	300	10.97	34.71	0.26	26.58	147	0.73
216	12.00	34.70	0.40	2.98				166	400	9.22	34.59	0.33	26.78	128	0.87
245	11.86	34.80	0.21	3.07				156	500	7.49	34.49	0.36	26.97	109	0.99
294	11.04	34.72	0.26	3.06				148	600	(6.64)	(34.51)	(0.21)	(27.10)	(97)	(1.10)
348	10.16	34.65	0.29	3.14b)				138							
516	7.28	34.49	0.27	3.31b)				107							
599	6.66	34.51	0.21	3.61b)				97							

ncident solar radiation: daily T 504 g.-cal./cm.^{2} .

Biological Data

ooplankton: N-C N, o to 63.0 m., 0754 hr. (14'), 22 ml. T, 22 ml. S.

) Salinity bottle numbers were not recorded on the data sheet. Since standard handling and titrating procedures were used, the salinity values are assumed to be in the order listed.

) Duplicate values: 11 m., 0.30; 56, 0.46; 133, 2.71; 152, 3.41; 348, 3.06; 516, 3.37; 599, 3.37 μg. at./l.

Table 3.--Continued

STATION 24 (137.55)

HUGH M. SMITH; August 20, 1959; 1904 G.c.t. (zone +7, 1204); 24°29'N., 114°22'W.; sounding, 2070 fm.; wind, 020°, force 4; temp., 77.2°F. dry, 74.0°F. wet; weather, partly cloudy; sea, very rough; wire angle, 02°; BT slide No. 24A, 24B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	24.02	34.02	4.76	0.39a)				496	0	(24.02)	(34.02)	(4.76)	(22.91)	(496)	(0.00)
10	23.86	34.04	4.76	0.37				489	10	23.86	34.04	4.76	22.98	489	0.05
30	20.82	34.05	5.26	0.35				408	20	23.80	34.04	4.76	23.00	488	0.10
40	19.38	34.00	-	-				374	30	20.82	34.05	5.26	23.84	408	0.14
55	17.65	33.86	5.29	0.46a)				344	50	18.00	33.88	5.30	24.44	350	0.22
70	16.18	33.87	4.93	0.90a)				310	75	15.70	33.88	4.64	24.97	299	0.30
94	13.48	33.94	2.59	1.81				249	100	13.12	34.00	2.16	25.62	238	0.37
114	12.92	34.25	1.55	2.42				216	150	12.68	34.68	0.49	26.23	180	0.47
133	12.68	34.52	0.88	2.57				192	200	12.14	34.76	0.33	26.40	164	0.56
154	12.68	34.70	0.45	3.06a)				178	250	11.37	34.79	0.21	26.57	148	0.64
183	12.38	34.72	0.33	3.06				172	300	10.86	34.75	0.15	26.62	143	0.72
217	11.88	34.79	0.33	3.22a)				157	400	9.13	34.62	0.19	26.82	124	0.86
246	11.43	34.80	0.22	3.12a)				149	500	7.72	34.57	0.16	27.00	107	0.98
305	10.80	34.74	0.14	3.27a)				142	600	6.64	34.49	0.24	27.08	99	1.08
350	10.14	34.70	0.12	3.07a)				134							
433	8.57	34.59	0.21	3.33				117							
517	7.53	34.56	0.15	3.41				105							
601	6.63	34.49	0.24	3.39				99							

Incident solar radiation: daily T 504 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1442-1505 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
0°	5	328	5		
12°	10	280	10	5-10	0.0316
15°	20	200	19	10-19	0.0374
15°	30	132	29	19-29	0.0415
15°	40	81.3	39	29-39	0.0485
18°	50	48.1	48	39-48	0.0583
20°	60	28.9	56	48-56	0.0636
28°	70	14.3	62	56-62	0.117
20°	80	6.98	75	62-75	0.0552
22°	90	2.60	83	75-83	0.123

a) Duplicate values: 1 m., 0.30; 55, 0.55; 70, 0.62; 154, 2.86; 217, 3.06; 246, 2.73; 305, 3.33; 350, 3.13 µg. at./l.

Table 3.--Continued

STATION 24 (137.55) (con.)

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Dark
0	0.047	0.139	0.030
10		0.120	0.016
		0.148	
10	0.060	-	-
25	0.065	-	-
50	0.13	-	-
75	0.16	-	-
100	0.18	-	-
125	0.12	-	-
150	0.065	-	-

Water column: 12 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 79.0 m., 1521 hr. (16'), 24 ml. T, 24 ml. S.

STATION 25 (143.26)

HUGH M. SMITH; August 21, 1959; 2345 G.c.t. (zone +7, 1645); 24°19'N., 111°48'W.; sounding, 42 fm.; wind, 200°, force 3; temp. 81.9°F. dry, 76.0°F. wet; weather, partly cloudy; sea, rough; wire angle, 02°; BT slide No. 25A, 25B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	27.17	34.70	4.45	0.77a)				539	0	27.17	34.70	4.45	22.46	539	0.00
10	27.00	34.69	4.31	0.49a)				535	10	27.00	34.69	4.31	22.50	535	0.05
30	24.26	34.49	5.24	0.73a)				468	20	26.07	34.62	4.62	22.74	512	0.11
50	19.92	34.29	4.81	0.74				366	30	24.26	34.49	5.24	23.20	468	0.16
									50	19.92	34.29	4.81	24.27	366	0.24

Incident solar radiation: daily T 576 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 69.2 m., 1700 hr. (15'), 345 ml. T, 345 ml. S.

a) Duplicate values: 0 m., 0.66; 10, 0.71; 30, 0.61 µg. at./l.

Table 3.--Continued

STATION 26 (143.30)

HUGH M. SMITH; August 22, 1959; 0200 G.c.t. (zone +7, 1900, VIII-21); 24°10.5'N., 112°03'W.; sounding, 110 fm.; wind, 220°, force 4; temp., 79.9°F. dry, 75.0°F. wet; weather, partly cloudy; sea, rough; wire angle, 00°; BT slide No. 26A, 26B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	27.16	34.56	4.35	0.57				548	0	(27.16)	(34.56)	(4.35)	(22.36)	(548)	(0.00)
11	27.12	34.56	4.26	0.58				548	10	27.13	34.56	4.26	22.37	548	0.05
31	21.68	34.27	4.97	0.56				413	20	25.50	34.45	4.46	22.80	506	0.11
51	17.91	34.27	3.64	1.18a)				320	30	21.90	34.28	4.95	23.72	418	0.15
75	15.62	34.56	1.29	2.34				248	50	18.05	34.27	3.73	24.72	324	0.23
100	15.16	34.76	0.81	2.63				223	75	15.62	34.56	1.29	25.51	248	0.30
125	14.84	34.78	0.64	2.72a)				215	100	15.16	34.76	0.81	25.78	223	0.36
154	14.04	34.87	0.45	2.32a)				193	150	14.16	34.86	0.45	26.07	195	0.47

Incident solar radiation: daily T 603 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 61.4 m., 1928 hr. (16'), 272 ml. T, 272 ml. S.

STATION 27 (140.30)

HUGH M. SMITH; August 22, 1959; 0717 G.c.t. (zone +7, 0017); 24°45'N., 112°24'W.; sounding, 60 fm.; wind, 230°, force 2; temp., 80.0°F. dry, 75.0°F. wet; weather, clear; sea, rough; wire angle, 00°; BT slide No. 27A.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	26.71	34.56	4.54	0.53				535	0	(26.71)	(34.56)	(4.54)	(22.50)	(535)	(0.00)
11	25.74	34.37	4.57	0.46				520	10	25.82	34.38	4.57	22.64	522	0.05
31	22.50	34.43	4.67	0.66				424	20	23.50	34.41	4.68	23.37	452	0.10
51	20.78	34.41	4.19	0.88				380	30	22.52	34.43	4.67	23.66	424	0.14
75	16.68	34.58	1.89	2.02b)				269	50	20.85	34.41	4.22	24.10	382	0.23
									75	16.68	34.58	1.89	25.29	269	0.31

Incident solar radiation: daily T 576 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 80.0 m., 0028 hr. (16'), 203 ml. T, 203 ml. S; H at 0 m., 0050 hr. (15'), 105.7 ml. T, 105.7 ml. S.

a) Duplicate values: 51 m., 1.38; 125, 2.62; 154, 2.80 µg. at./l.
b) Duplicate value, 2.12 µg. at./l.

able 3.--Continued

STATION 28 (137.23)

UGH M. SMITH; August 22, 1959; 1343 G.c.t. (zone +7, 0643); 25°32.5'N., 112°22.5'W.; sounding, 41 fm.; wind, 210°, force temp., 78.6°F. dry, 75.0°F. wet; weather, partly cloudy; sea, rough; wire angle, 00°; BT slide No. 28A.

OBSERVED									INTERPOLATED				COMPUTED		
epth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.38	34.11	4.57	0.45				528	0	(25.38)	(34.11)	(4.57)	(22.57)	(528)	(0.00)
11	25.38	34.13	4.64	0.47				526	10	25.38	34.13	4.64	22.59	526	0.05
31	22.79	34.18	5.03	0.53				450	20	24.20	34.16	4.87	22.97	490	0.10
51	19.98	34.41	4.02	1.06				360	30	22.87	34.18	5.03	23.37	452	0.15
									50	20.02	34.40	4.05	24.32	362	0.23

cident solar radiation: daily T 603 g.-cal./cm.^{2} .

Biological Data

oplankton: N-C N, o to 75.0 m., 0703 hr. (17'), 86 ml. T, 86 ml. S.

STATION 29 (137.30)

UGH M. SMITH; August 22, 1959; 1751 G.c.t. (zone +7, 1051); 25°22'N., 112°47.5'W.; sounding, 195 fm.; wind, 250°, force 2; mp., 78.5°F. dry, 73.7°F. wet; weather, clear; sea, rough; wire angle, 08°; BT slide No. 29A, 29B.

OBSERVED									INTERPOLATED				COMPUTED		
epth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	26.78	34.42	4.47	0.43				547	0	(26.78)	(34.42)	(4.47)	(22.38)	(547)	(0.00)
11	26.69	34.42	4.47	0.41				544	10	26.69	34.42	4.47	22.41	544	0.05
31	20.68	33.90	5.34	0.39				414	20	26.00	34.36	4.54	22.57	528	0.11
51	18.09	34.49	2.90	1.59a)				308	30	21.30	33.94	5.33	23.63	427	0.16
75	15.98	34.52	1.91	2.20a)				258	50	18.22	34.46	3.03	24.83	313	0.23
99	14.70	34.56	1.46	2.41				228	75	15.98	34.52	1.91	25.40	258	0.30
23	14.50	34.79	0.60	2.79				207	100	14.67	34.56	1.43	25.73	227	0.36
63	13.16	34.74	0.34	2.86				184	150	13.60	34.77	0.38	26.11	191	0.47
01	12.46	34.69	0.31	2.72a)				176	200	12.48	34.69	0.31	26.28	176	0.56
50	11.70	34.69	0.38	3.52				161	250	11.70	34.69	0.38	26.43	161	0.65
01	10.99	34.65	0.21	3.52				152	300	11.00	34.65	0.21	26.53	152	0.73

cident solar radiation: daily T 603 g.-cal./cm.^{2} .

Biological Data

oplankton: N-C N, 104.4 m., 0948 hr. (15'), 36 ml. T, 36 ml. S.

a) Duplicate values: 51 m., 1.53; 75, 2.06; 201, 2.91 µg. at./l.

Table 3.--Continued

STATION 30 (137.35)

HUGH M. SMITH; August 22, 1959; 2100 G.c.t. (zone +7, 1400); 25°14'N., 113°03'W.; sounding, 275 fm.; wind, 250°, force 2; temp., 85.1°F. dry, 76.0°F. wet; weather, partly cloudy; sea, moderate; wire angle, 09°; BT slide No. 30A, 30B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m
1	26.62	34.36	4.54	0.49				547	0	(26.62)	(34.36)	(4.54)	(22.38)	(547)	(0.00)
11	26.32	34.34	4.43	0.52				539	10	26.33	34.34	4.44	22.46	539	0.05
30	21.06	34.15	5.29	0.48a)				406	20	26.10	34.33	4.45	22.52	534	0.11
50	16.70	34.01	4.50	0.87				311	30	21.06	34.15	5.29	23.85	406	0.16
75	15.22	34.14	2.97	1.68a)				270	50	16.70	34.01	4.50	24.85	311	0.23
99	15.70	34.88	0.81	2.74a)				226	75	15.22	34.14	2.97	25.28	270	0.30
123	14.69	34.87	0.60	2.71a)				205	100	15.69	34.88	0.80	25.75	225	0.36
163	13.86	34.90	0.50	2.93				186	150	14.12	34.89	0.51	26.10	192	0.47
202	13.00	34.78	0.48	2.81a)				178	200	13.06	34.79	0.49	26.24	179	0.56
251	11.78	34.68	0.26	2.96				163	250	11.79	34.68	0.26	26.41	163	0.65
301	11.12	34.67	0.36	2.94				152	300	11.13	34.67	0.36	26.52	153	0.73
404	9.04	34.56	-	3.12				127	400	9.16	34.56		26.78	128	0.88

Incident solar radiation: daily T 603 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1425-1455 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
6°	5	657	5		
13°	10	522	10	5-10	0.0460
15°	20	330	19	10-19	0.0510
17°	25	258	24	19-24	0.0492
23°	30	181	28	24-28	0.0888
23°	40	90.4	37	28-37	0.0771
32°	50	40	42	37-42	0.163
35°	60	13.9	49	42-49	0.151
35°	70	6.72	57	49-57	0.0909
35°	75	4.62	61	57-61	0.0938

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles		Deck Incubator mg. C/m.^{3}/day	
m.	mg./m.^{3}	Light	Dark	Light	Dark
0	0.102	0.206 0.262	0.096	5.84 5.63	0.936
10	0.100	-	-	-	-
25	0.19	-	-	-	-
50	0.47	-	-	-	-
75	0.14	-	-	-	-
100	0.102	-	-	-	-
125	0.11	-	-	-	-
150	0.061	-	-	-	-

Water column: 23 mg./m.^{2}

a) Duplicate values: 30 m., 0.81; 75, 1.60; 99, 2.64; 123, 2.79; 202, 2.71 µg. at./l.

able 3.--Continued

STATION 30 (137.35) (con.)

ytoplankton haul taken.

oplankton: N-C N, 123.4 m., 1509 hr. (14'), 131 ml. T, 131 ml. S.

STATION 31 (140.35)

UGH M. SMITH; August 23, 1959; 0425 G.c.t. (zone +7, 2125, VIII-22); 24°36'N., 112°39'W.; sounding, 385 fm.; wind, 330°, rce 3; temp., 79.2°F. dry, 73.8°F. wet; weather, partly cloudy; sea, moderate; wire angle, 04°; BT slide No. 31A, 31B.

OBSERVED									INTERPOLATED				COMPUTED		
pth	T.	S.	O_2	PO_4-P	NO_3-N	NO_2-N	SiO_3	$\delta_{-5}T_3$	Depth	T.	S.	O_2	σ_t	$\delta_{-5}T_3$	ΔD
n.	°C.	‰	ml/l.	μg.at./l.	μg.at./l.	μg.at./l.	μg.at./l.	10cm/g.	m.	°C.	‰	ml/l.	g./l.	10cm/g.	dyn.m.
1	26.95	34.66	4.33	0.61a)				535	0	(26.95)	(34.66)	(4.33)	(22.50)	(535)	(0.00)
11	26.94	34.61	4.47	0.59				538	10	26.94	34.61	4.46	22.47	538	0.05
30	22.72	34.33	5.02	0.57				437	20	26.00	34.54	4.64	22.71	515	0.11
40	19.72	34.10	4.90	0.31a)				375	30	22.72	34.33	5.02	23.53	437	0.15
55	17.57	33.97	5.03	0.64a)				334	50	18.10	33.99	5.01	24.50	344	0.23
70	15.70	33.96	3.95	1.16				293	75	15.61	34.04	3.69	25.11	286	0.31
94	14.68	34.40	1.51	2.36a)				240	100	14.85	34.57	1.17	25.69	231	0.38
14	14.86	34.79	0.72	2.82				215	150	13.64	34.86	0.43	26.18	185	0.48
34	14.22	34.90	0.55	2.67a)				194	200	12.28	34.77	0.30	26.38	166	0.57
54	13.50	34.85	0.40	3.00				183	250	11.37	34.69	0.19	26.49	155	0.65
83	12.74	34.80	0.26	3.00				172	300	10.82	34.67	0.23	26.56	148	0.73
18	11.82	34.74	0.31	3.00				160	400	8.85	34.54	0.28	26.81	125	0.87
47	11.40	34.70	0.19	3.00				156	500	7.12	34.50	0.23	27.03	104	0.99
97	10.87	34.67	0.22	3.00				148	600	6.39	34.45	0.20	27.09	98	1.10
51	9.88	34.60	0.29	3.05				137							
35	8.14	34.52	0.26	3.29a)				116							
19	6.92	34.49	0.21	3.40				102							
05	6.36	34.45	0.19	3.40				98							

cident solar radiation: daily T 603 g.-cal./cm.^{2} .

Biological Data

oplankton: N-C N, 91.4 m., 2015 hr. (17'), 239 ml. T, 239 ml. S.

Duplicate values: 1 m., 0.53; 40, 0.55; 55, 0.53; 94, 2.28; 134, 3.03; 435, 3.22 μg. at./l.

Table 3.--Continued

STATION 32 (140.40)

HUGH M. SMITH; August 23, 1959; 0845 G.c.t. (zone +7, 0145); 24°25.5'N., 113°02.5'W.; sounding, 2000 fm.; wind, 320°, force 3; temp., 77.7°F. dry, 73.0°F. wet; weather, partly cloudy; sea, slight; wire angle, 03°; BT slide No. 32A, 32B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.66	33.93	4.60	0.14				549	0	(25.66)	(33.93)	(4.60)	(22.36)	(549)	(0.00)
11	25.64	33.96	4.64	0.16				546	10	25.64	33.96	4.64	22.38	546	0.05
30	19.32	33.98	5.45	0.21				374	20	24.83	33.97	4.84	22.64	522	0.11
40	16.16	33.76	5.14	0.41				317	30	19.32	33.98	5.45	24.18	374	0.15
55	14.38	33.78	4.23	0.91				279	50	14.84	33.77	4.60	25.08	289	0.22
70	13.20	33.82	3.14	1.36				253	75	13.07	33.85	2.95	25.51	248	0.29
94	12.68	34.21	1.58	2.12a)				214	100	12.59	34.25	1.46	25.92	210	0.34
114	12.34	34.33	1.29	2.41				200	150	12.18	34.57	0.60	26.25	178	0.44
134	12.42	34.34u	0.79	2.69a)				-	200	11.29	34.61	0.49	26.44	160	0.53
153	12.10	34.58	0.60	2.67a)				176	250	10.28	34.58	0.45	26.60	145	0.61
183	11.58	34.60	0.58	2.69				165	300	9.76	34.55	0.31	26.67	138	0.68
217	10.93	34.61	0.41	2.82a)				154	400	8.26	34.50	0.41	26.86	120	0.82
247	10.32	34.58	0.46	2.66				145	500	7.09	34.50	0.36	27.03	104	0.93
296	9.82	34.56	0.31	2.93a)				140	600	6.17	34.44	0.34	27.11	96	1.04
350	9.03	34.52	0.38	2.83a)				130							
434	7.80	34.50	0.41	3.06a)				113							
518	6.90	34.49	0.34	3.32a)				102							
603	6.14	34.44	0.34	3.21				96							

Incident solar radiation: daily T 603 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.056
50	0.61
100	0.106
150	0.054

Water column: 35 mg./m.^{2}

Zooplankton: N-C N, 60.6 m., 0245 hr. (15'), 100 ml. T, 100 ml. S.

Micronekton: o to 84 m., 0030 hr. (36'), 2746 ml. T w/o jellies.

a) Duplicate values: 94 m., 2.28; 134, 2.55; 153, 2.59; 217, 2.70; 296, 2.78; 350, 2.93; 434, 3.14; 518, 2.88 µg. at./l.

STATION 33 (140.45)

UGH M. SMITH; August 23, 1959; zone +7, 0509-0555; 24°18'N., 113°25'W.; sounding, 1000+ fm.; wind, 320°, force 1; temp., 6.8°F. dry, 72.5°F. wet; weather, 02; clouds, 8, 6, amt., 3; sea, 4; swell, 320°, 3 ft., 6 sec.; BT slide No. 33A, 33B.

ıcident solar radiation: daily T 581 g.-cal./cm.^{2} .

Biological Data

ooplankton: N-C N, o to 87.6 m., 0532 hr. (23'), 41 ml. T, 41 ml. S.

STATION 34 (140.50)

UGH M. SMITH; August 23, 1959; 1655 G.c.t. (zone +7, 0955); 24°08'N., 113°42.5'W.; sounding, 1800 fm.; wind, 320°, force ; temp., 77.3°F. dry, 71.8°F. wet; weather, partly cloudy; sea, rough; wire angle, 18°; BT slide No. 34A, 34B.

OBSERVED									INTERPOLATED				COMPUTED		
epth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	23.94	34.03	4.60	0.17a)	0.2	0.0	1.7	492	0	(23.94)	(34.03)	(4.60)	(22.95)	(492)	(0.00)
10	23.90	34.04	4.50	0.26a)	0.4	0.0	1.8	490	10	23.90	34.04	4.50	22.97	490	0.05
28	19.86	33.98	4.97	0.31a)	-	-	-	388	20	23.00	34.03	4.58	23.22	466	0.10
38	19.25	33.97	5.10	0.22	0.4	0.0	1.1	374	30	19.73	33.98	5.00	24.07	385	0.14
52	17.52	33.91	4.64	0.31	0.3	0.0	1.4	337	50	17.92	33.93	4.76	24.49	345	0.21
65	14.29	33.80	3.76	1.08	7.6	0.08	6.7	276	75	12.98	33.91	2.48	25.58	242	0.29
88	12.70	34.04	1.82	2.00	22.4	0.02	21.8	227	100	12.78	34.22	1.24	25.86	215	0.34
106	12.81	34.31	0.91	2.52a)	26.7	0.0	28.2	210	150	12.69	34.59	0.38	26.16	187	0.45
124	12.86	34.48	0.74	2.73a)	26.2	trace	31.5	198	200	11.88	34.66	0.41	26.37	166	0.54
142	12.76	34.57	0.38	2.58a)	-	-	-	189	250	11.07	34.64	0.38	26.50	154	0.62
169	12.42	34.62	0.38	2.86a)	-	0.01	34.8	180	300	10.23	34.56	0.45	26.60	145	0.70
200	11.88	34.66	0.41	2.90a)	-	-	-	166	400	8.95	34.56	0.21	26.80	125	0.84
227	11.55	34.67	0.21	2.90a)	-	-	-	160	500	7.55	34.50	0.20	26.97	110	0.96
273	10.56	34.69u	0.48	2.82	-	0.0	38.3	-							
324	9.96	34.56	0.34	2.75	-	-	-	141							
403	8.90	34.56	0.21	3.01a)	30.6	0.0	50.9	125							
484	7.74	34.51	0.21	2.87a)	-	-	-	111							
567	6.99	34.49	0.17	3.29	30.9	0.0	69.5	103							

cident solar radiation: daily T 581 g.-cal./cm.^{2} .

ıbmarine irradiance and attenuation coefficients at 1205-1250 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µg.	m.	m.	k
0°	5	866	5		
3°	10	691	10	5-10	0.0452
16°	20	439	19	10-19	0.0504
28°	25	388	22	19-22	0.0410
25°	30	320	27	22-27	0.0386
35°	40	263	33	27-33	0.0327
38°	50	184	39	33-39	0.0595
41°	60	117	45	39-45	0.0755
45°	70	74.7	49	45-49	0.112
-	80	39.7	57	49-57	0.0790

Duplicate values: 1 m., 0.23; 10, 0.17; 28, 0.21; 106, 2.40; 124, 2.48; 142, 2.78; 169, 3.14; 200, 2.70; 227, 2.74; 403, 2.87; 484, 3.16 µg. at./l.

STATION 34 (140.50) (con.)

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.065
10	0.069
25	0.089
50	0.153
75	0.091
100	0.053
125	0.072
150	0.066

Water column: 9.7 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 110.6 m., 0901 hr. (16'), 18 ml. T, 18 ml. S.

STATION 35 (140.55)

HUGH M. SMITH; August 23, 1959; zone +7, 1630-1715; 23°55'N., 114°01.5'W.; sounding, 1000 fm.; wind, 320°, force 1; temp., 81.5°F. dry, 72.9°F. wet; weather, 02; clouds, 6, amt., 2; sea, 3; swell, 320°, 4 ft., 5 sec.; BT slide No. 35A, 35B.

Observations at 1650 (2350 G.c.t.) at 10 m.: temperature, 25.48°C.; salinity, 34.22‰.

Incident solar radiation: daily T 581 g.-cal./cm.^{2}.

Biological Data

Zooplankton: N-C N, o to 68.0 m., 1655 hr. (20'), 34 ml. T, 34 ml. S.

Table 3.--Continued

STATION 36 (140.60)

HUGH M. SMITH; August 24, 1959; 0250 G.c.t. (zone +7, 1950, VIII-23); 23°44.5'N., 114°22'W.; sounding, 2100 fm.; wind, 340°, force 2; temp., 78.4°F. dry, 71.2°F. wet; weather, partly cloudy; sea, moderate; wire angle, 06°; BT slide No. 36A, 36B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	26.06	34.28	4.43	0.26				536	0	(26.06)	(34.28)	(4.43)	(22.49)	(536)	(0.00)
11	26.06	34.31	4.47	0.34				534	10	26.06	34.31	4.47	22.51	534	0.05
30	22.72	33.98	4.81	0.28				462	20	25.83	34.29	4.52	22.57	528	0.11
40	17.82	33.80	5.15	0.35a)				352	30	22.72	33.98	4.81	23.26	462	0.16
55	15.76	33.87	4.26	0.52				301	50	16.35	33.85	4.63	24.80	316	0.23
70	14.62	33.89	3.54	1.10				276	75	14.37	33.95	3.16	25.32	266	0.31
94	13.80	34.31	1.77	1.99				229	100	13.55	34.36	1.70	25.81	220	0.37
114	12.16	34.26	1.63	2.23				201	150	10.66	34.36	1.52	26.35	168	0.47
134	10.66	34.14	2.11	1.93a)				184	200	10.82	34.61	0.61	26.52	152	0.55
154	10.68	34.39	1.39	2.45				166	250	10.51	34.72	0.26	26.66	139	0.62
183	10.82	34.54	0.91	2.59				158	300	10.00	34.65	0.20	26.69	136	0.70
218	10.82	34.69	0.33	2.82				146	400	8.78	34.62	0.23	26.88	118	0.83
247	10.55	34.72	0.27	2.82				139	500	7.63	34.58	0.20	27.02	105	0.94
297	10.02	34.65	0.21	2.99a)				136	600	6.58	34.54	0.17	27.14	94	1.05
352	9.40	34.64	0.19	2.99a)				126							
434	8.34	34.60	0.24	3.10				113							
520	7.42	34.57	0.19	3.21				103							
603	6.53	34.54	0.17	3.29				93							

Incident solar radiation: daily T 581 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 117.4 m., 2039 hr. (14'), 82 ml. T, 82 ml. S.

STATION 37 (140.65)

HUGH M. SMITH; August 23, 1959; zone +7, 2243-2255; 23°36'N., 114°37'W.; sounding, 2050 fm.; wind, 350°, force 1; temp., 75.6°F. dry, 70.2°F. wet; weather, 02; clouds, amt., 3; sea, 3; swell, 330°, 4 ft., 5 sec.; BT slide No. 37A, 37B.[b]

Incident solar radiation: daily T 581 g.-cal./cm.^{2} .

a) Duplicate values: 40 m., 0.25; 134, 2.13; 297, 2.87; 352, 2.93 µg. at./l.
b) BT observations only; insufficient time to obtain hydrographic and biological data.

Table 3.--Continued

STATION 38 (140.70)

HUGH M. SMITH; August 24, 1959; 0940, 1007 G.c.t. (zone +7, 0240, 0307); 23°26'N., 114°55'W.; sounding, 2000+ fm.; wind, 340°, force 3; temp., 75.4°F. dry, 70.2°F. wet; weather, partly cloudy; sea, moderate; wire angle, 20°, 30°; BT slide No. 38A, 38B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.96	34.49	4.55	0.37	0.3			518	0	(25.96)	(34.49)	(4.55)	(22.68)	(518)	(0.00)
10	25.36	34.42	4.59	0.39	0.2			505	10	25.36	34.42	4.59	22.81	505	0.05
29	24.09	34.38	4.79	0.45	-			471	20	25.25	34.41	4.60	22.84	502	0.10
37	22.76	34.31	4.95	0.49a)	0.2			440	30	23.97	34.37	4.81	23.20	468	0.15
51	17.57	34.05	4.91	0.71a)	0.2			328	50	17.85	34.05	4.95	24.60	334	0.23
64	16.24	34.19	3.09	1.44	0.2			288	75	15.88	34.24	2.71	25.22	276	0.31
87	14.50	34.26	2.13	1.89	0.3			246	100	12.48	34.06	2.15	25.78	222	0.37
105	12.47	34.09	2.15	2.00	0.6			220	150	11.34	34.37	1.31	26.25	178	0.47
122	11.96	34.25	1.67	2.24a)	3.2			198	200	10.72	34.52	0.68	26.48	156	0.56
140	11.49	34.30	1.43	2.72a)	-			186	250	9.72	34.46	0.58	26.60	145	0.63
166	11.14	34.47	1.13	2.58	18.7			168	300	8.92	34.46	0.66	26.73	132	0.71
196	10.78	34.52	0.69	2.58	-			158	400	8.04	34.45	0.33	26.86	120	0.84
223	10.36	34.51	0.67	2.70a)	-			151	500	7.09	34.46	0.22	27.00	107	0.96
267	9.36	34.43	0.53	3.17	36.7			141							
317	8.75	34.47	0.67	2.84	-			129							
374	8.32	34.45	0.40	2.95	32.3			124							
452	7.47	34.46	0.26	3.17a)	-			112							
533	6.86	34.45	0.21	3.37a)	-			104							

Incident solar radiation: daily T 608 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.097
50	0.40
100	0.089

Water column: 27 mg./m.^{2}

Zooplankton: N-C N, o to 68.2 m., 0405 hr. (15'), 132 ml. T, 132 ml. S.

Micronekton: o to 82 m., 0110 hr. (44'), 658 ml. T w/o jellies.

a) Duplicate values: 37 m., 0.41; 51, 0.62; 122, 2.08; 140, 2.44; 223, 2.58; 452, 3.05; 533, 3.25 µg. at./l.

Table 3.--Continued

STATION 39 (143.70)

HUGH M. SMITH; August 24, 1959; 1650, missing, 1745 G.c.t. (zone +7, 0950, missing, 1045); 22°50'N., 114°32.5'W.; sounding, 2200 fm.; wind, 360°, force 2; temp., 76.2°F. dry, 71.3°F. wet; weather, cloudy; sea, moderate; wire angle, 34°, 45°, 45°; BT slide No. 39A, 39B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth	T.	S.	O_2	PO_4-P	NO_3-N	NO_2-N	SiO_3	$\delta_{-5}T_3$	Depth	T.	S.	O_2	σ_t	$\delta_{-5}T_3$	ΔD
m.	°C.	‰	ml/l.	μg.at./l.	μg.at./l.	μg.at./l.	μg.at./l.	10cm/g.	m.	°C.	‰	ml/l.	g./l.	10cm/g.	dyn.m.
1	24.78	34.22	4.64	0.24				502	0	(24.78)	(34.22)	(4.64)	(22.84)	(502)	(0.00)
9	24.74	34.18	4.48	0.24				504	10	24.74	34.18	4.47	22.82	504	0.05
25	23.40	34.29	4.78	0.31a)				459	20	24.72	34.18	4.47	22.83	504	0.10
33	21.82	34.34	5.22	0.28				412	30	22.40	34.34	5.13	23.62	428	0.15
45	20.46	34.27	4.88	0.29				382	50	19.97	34.23	4.84	24.20	372	0.23
57	19.86	34.22	4.84	0.35a)				371	75	18.00	33.99	4.71	24.52	343	0.32
75	18.00	33.99	4.71	0.34				343	100	15.47	33.90	4.45	25.04	293	0.40
90	16.48	33.96	4.60	0.44				310	150	11.30	34.05	2.26	26.00	202	0.52
106	14.84	33.86	4.23	0.62a)				282	200	10.47	34.36	1.23	26.39	165	0.62
121	13.36	33.87	3.28	1.42				252	250	9.67	34.50	0.82	26.64	141	0.70
									300	9.44	34.53	0.39	26.70	135	0.77
131	12.22	33.86	2.99	1.53				232	400	(7.95)	(34.49)	(0.27)	(26.90)	(116)	(0.90)
155	11.23	34.08	2.15	2.12a)				198							
177	10.78	34.27	1.49	2.39				176							
211	10.32	34.39	1.13	2.55a)				160							
255	9.60	34.51	0.76	2.63				139							
322	9.36	34.53	0.31	2.97a)				134							
396	8.04	34.49	0.27	3.07				118							

Incident solar radiation: daily T 608 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1315-1340 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
0°	5	847	5		
6°	10	743	10	5-10	0.0262
17°	20	591	19	10-19	0.0254
25°	25	501	23	19-23	0.0412
35°	30	455	25	23-25	0.0485
40°	40	362	31	25-31	0.0380
44°	50	300	36	31-36	0.0376
52°	60	261	37	36-37	0.140
54°	70	250	41	37-41	0.0108
-	80	218	47	41-47	0.0228

1/ Duplicate values: 25 m., 0.23; 57, 0.26; 106, 0.70; 155, 2.41; 211, 2.70; 322, 2.90 μg. at./l.

STATION 39 (143.70) (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	- a)
10	0.058
25	0.062
50	0.062
75	0.084
100	0.12
125	0.028
150	0.093

Water column: 7.6 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 93.8 m., 1140 hr. (11'), 25 ml. T, 25 ml. S.

STATION 40 (143.65)

HUGH M. SMITH; August 24, 1959; zone +7, 1610-1625; 23°00'N., 114°14.5'W.; sounding, 2000 fm.; wind, 320°, force 2; temp., 77.6°F. dry, 71.4°F. wet; weather, 02; clouds, 6, amt., 8; sea, 4; swell, 320°, 4 ft., 6 sec.; BT slide No. 40A, 40B.[b]

Incident solar radiation: daily T 608 g.-cal./cm.^{2} .

a) Sample spilled.
b) BT observations only; insufficient time to obtain hydrographic and biological data.

Table 3.--Continued

STATION 41 (143.60)

UGH M. SMITH; August 25, 1959; 0225 G.c.t. (zone +7, 1925, VIII-24); 23°12.5'N., 114°04'W.; sounding, 2200 fm.; wind, 360°, orce 3; temp., 76.6°F. dry, 70.0°F. wet; weather, partly cloudy; sea, rough; wire angle, 16°; BT slide No. 41A, 41B.

OBSERVED									INTERPOLATED				COMPUTED		
epth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.28	34.06	4.55	0.27				528	0	(25.28)	(34.06)	(4.55)	(22.57)	(528)	(0.00)
11	25.27	34.10	4.47	0.31				525	10	25.27	34.10	4.47	22.59	526	0.05
35	20.08	34.09	5.10	0.29				385	20	23.90	34.10	4.64	23.01	486	0.10
45	19.12	34.01	5.07	0.33				367	30	21.08	34.10	4.99	23.80	411	0.15
59	17.54	33.95	4.97	0.41				335	50	18.89	34.00	5.06	24.30	363	0.22
74	15.56	33.88	4.30	0.69				296	75	15.54	33.90	4.25	25.03	294	0.31
98	13.23	33.96	2.59	1.71				244	100	13.20	33.99	2.42	25.59	240	0.38
117	13.44	34.42	1.10	2.43				214	150	12.88	34.70	0.35	26.21	182	0.48
136	13.39	34.71	0.36	2.58a)				191	200	11.97	34.71	0.19	26.39	165	0.57
165	12.44	34.70	0.34	2.85				174	250	11.20	34.70	0.19	26.53	152	0.65
195	12.05	34.71	0.19	2.85				166	300	10.51	34.72	0.12	26.67	138	0.73
232	11.40	34.70	0.21	3.03a)				155	400	9.10	34.62	0.17	26.82	124	0.86
262	11.06	34.70	0.14	2.89				149	500	7.82	34.62	0.14	27.03	104	0.98
307	10.41	34.72	0.12	3.01				137	600	6.62	34.59	0.11	27.17	91	1.09
373	9.48	34.62	0.17	2.99				129							
470	8.15	34.63	0.15	3.27a)				108							
559	7.15	34.60	0.10	3.27				96							
632	6.16	34.58	0.17	3.47a)				85							

ncident solar radiation: daily T 608 g.-cal./cm.^{2} .

Biological Data

ooplankton: N-C N, o to 115.4 m., 1954 hr. (15'), 77 ml. T, 77 ml. S.

STATION 42 (143.55)

UGH M. SMITH; August 24-25, 1959; zone +7, 2259-0137; 23°20'N., 113°39.5'W.; sounding, 2000± fm.; wind, 320°, force 1; temp., 5.4°F. dry, 69.2°F. wet; weather, 02; clouds, 6, amt., 3; sea, 4; swell, 330°, 4 ft., 6 sec.; BT slide No. 42A, 42B.

bservations at 0110 (0810 G.c.t.) at 10 m.: temperature, 24.84°C.; salinity, 34.06‰ .

ncident solar radiation: daily T 608 g.-cal./cm.^{2} .

Biological Data

hytoplankton:

epth m.	Chlorophyll a mg./m.^{3}
0	0.11
50	0.25
00	0.088

ater column: 20 mg./m.^{2}

ooplankton: N-C N, o to 120.6 m., 2307 hr. (14'), 26 ml. T, 26 ml. S; H at 0 m., 2329 hr. (15'), 132.1 ml. T, 132.1 ml. S.

icronekton: o to 80 m., 2355 hr. (43'), 1630 ml. T w/o jellies.

Duplicate values: 136 m., 2.79; 232, 2.89; 470, 3.05; 632, 3.38 µg. at./l.

Table 3.--Continued

STATION 43 (143.50)

HUGH M. SMITH; August 25, 1959; 1129 G.c.t. (zone +7, 0429); 23°26.5'N., 113°19'W.; sounding, 1500 fm.; wind, 320°, force 4; temp., 75.0°F. dry, 69.5°F. wet; weather, partly cloudy; sea, rough; wire angle, 07°; BT slide No. 43A, 43B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn. m.
1	25.4	34.45	4.52	0.42				504	0	25.4	(34.45)	(4.52)	(22.82)	(504)	(0.00)
11	25.34	34.44	4.67	0.34				503	10	25.35	34.44	4.66	22.84	503	0.05
30	19.78	34.04	5.22	0.21				381	20	23.00	34.27	4.96	23.40	449	0.10
40	18.64	33.95	5.27	0.22				361	30	19.78	34.04	5.22	24.11	381	0.14
55	16.60	33.84	5.05	0.33				322	50	17.21	33.86	5.17	24.61	334	0.21
69	14.55	34.04	2.77	1.41a)				263	75	14.46	34.10	2.55	25.42	257	0.29
94	13.89	34.47	1.27	2.20				219	100	13.95	34.62	0.90	25.92	209	0.35
112	14.12	34.81	0.55	2.65				198	150	13.00	34.83	0.30	26.28	175	0.44
132	13.42	34.86	0.45	2.71a)				181	200	11.95	34.82	0.20	26.48	156	0.53
152	12.96	34.83	0.29	2.74				174	250	11.21	34.78	0.15	26.58	146	0.60
191	12.12	34.83	0.21	2.74				158	300	10.65	34.74	0.17	26.66	139	0.68
215	11.70	34.79	0.17	2.72				154	400	9.08	34.63	0.17	26.84	122	0.81
244	11.28	34.78	0.15	2.78				147	500	7.60	34.55	0.15	27.00	107	0.93
293	10.74	34.75	0.17	2.87				140	600	(6.32)	(34.47)	(0.19)	(27.11)	(96)	(1.04)
347	9.92	34.68	0.14	2.87				131							
430	8.60	34.60	0.19	3.03a)				117							
513	7.42	34.54	0.14	3.03				105							
598	6.36	34.47	0.19	3.18				96							

Incident solar radiation: daily T 549 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 96.2 m., 0500 hr. (15'), 86 ml. T, 86 ml. S.

STATION 44 (143.45)

HUGH M. SMITH; August 25, 1959; zone +7, 0742-0825; 23°40'N., 112°58'W.; sounding, 1900 fm.; wind, 350°, force 2; temp., 75.0°F. dry, 69.9°F. wet; weather, 03; clouds, 6, 8, amt., 7; sea, 4; swell, 350°, 5 ft., 5 sec.; BT slide No. 44A.

Observations at 0810 (1510 G.c.t.) at 10 m.: temperature, 20.97°C.; salinity, 33.97‰ .

Incident solar radiation: daily T 549 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 108.4 m., 0744 hr. (16'), 41 ml. T, 41 ml. S.

a) Duplicate values: 69 m., 1.51; 132, 2.53; 430, 2.86 µg. at./l.

able 3.--Continued

STATION 45 (143.40)

UGH M. SMITH; August 25, 1959; 1853 G.c.t. (zone +7, 1153); 23°51'N., 112°40.5'W.; sounding, 1800 fm.; wind, 340°, force 4; mp., 77.6°F. dry, 72.0°F. wet; weather, cloudy; sea, rough; wire angle, 17°; BT slide No. 45A, 45B.

OBSERVED									INTERPOLATED				COMPUTED		
epth	T.	S.	O_2	PO_4-P	NO_3-N	NO_2-N	SiO_3	$\delta_{-5}T_3$	Depth	T.	S.	O_2	σ_t	$\delta_{-5}T_3$	ΔD
m.	°C.	‰	ml/l.	µg.at./l.	µg.at./l.	µg.at./l.	µg.at./l.	10cm/g.	m.	°C.	‰	ml/l.	g./l.	10cm/g.	dyn.m.
2	26.28	34.14	4.11					552	0	(26.28)	(34.14)	(4.11)	(22.32)	(552)	(0.00)
11	26.26	34.14	4.36					552	10	26.26	34.14	4.36	22.32	552	0.06
30	18.94	34.09	5.15					357	20	26.23	34.14	4.39	22.34	551	0.11
39	17.38	34.07	4.31					322	30	18.94	34.09	5.15	24.36	357	0.16
53	15.34	33.93	3.80					288	50	15.88	33.97	3.94	25.02	295	0.22
67	13.35	33.96	2.49					245	75	13.21	34.01	2.29	25.60	240	0.29
90	12.63	34.22	1.55					213	100	12.40	34.26	1.52	25.95	206	0.34
.09	11.66	34.19	1.49					198	150	11.11	34.38	1.45	26.30	174	0.44
.29	11.38	34.29	1.31					185	200	10.95	34.56	0.52	26.46	158	0.52
.47	11.15	34.37	1.51					175	250	10.72	34.62	0.29	26.55	149	0.60
.74	10.92	34.49	0.52					162	300	10.26	34.64	0.19	26.65	140	0.68
:07	10.90	34.56	0.52					157	400	8.06	34.50	0.24	26.89	117	0.81
:35	10.78	34.60	0.34					152	500	6.78	34.45	0.28	27.05	103	0.93
:82	10.58	34.65	0.19					145	600	(6.13)	(34.47)		(27.15)	(93)	(1.03)
:35	9.35	34.58	0.22					130							
:15	7.80	34.48	0.26					114							
98	6.80	34.45	0.29					103							
:81	6.21	34.47	0.27					95							

cident solar radiation: daily T 549 g.-cal./cm.^{2} .

bmarine irradiance and attenuation coefficients at 1330-1405 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
0°	5	698	5		
17°	10	636	10	5-10	0.0186
22°	20	436	18	10-18	0.0471
28°	25	346	22	18-22	0.0580
26°	30	264	27	22-27	0.0540
26°	40	141	36	27-36	0.0697
36°	50	86.8	40	36-40	0.121
	60	37.2	48	40-48	0.106
	70	8.71	57	48-57	0.161

Table 3.--Continued

STATION 45 (143.40) (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.055
10	0.081
25	0.11
50	0.52
75	0.089
100	0.056
125	0.074
150	0.042

Water column: 20 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 122.0 m., 1221 hr. (14'), 69 ml. T, 69 ml. S.

STATION 46 (143.35)

HUGH M. SMITH; August 26, 1959; 0100 G.c.t. (zone +7, 1800, VIII-25); 24°12.5'N., 112°25'W.; sounding, 550 fm.; wind, 320°, force 4; temp., 76.9°F. dry, 70.9°F. wet; weather, partly cloudy; sea, very rough; wire angle, 07°; BT slide No. 46A, 46B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
2	26.76	-	4.23	0.30	0.7	0.0	2.1	-	0	(26.76)	(34.53)	(4.23)	(22.47)	(538)	(0.00)
12	26.78	34.53	4.09	0.28	0.2	0.0	2.2	539	10	26.77	(34.53)	4.12	(22.46)	(539)	(0.05)
32	19.90	33.94	5.02	0.17	-	-	-	392	20	26.75	34.53	4.09	22.47	538	0.11
41	18.64	34.11	4.93	0.18	1.1	0.0	1.2	349	30	22.20	34.11	4.77	23.51	439	0.16
56	16.56	34.02	3.97	0.77	4.5	0.17	6.1	307	50	17.46	34.06	4.52	24.70	325	0.23
71	14.78	34.23	1.86	1.80	23.7	0.06	17.3	254	75	14.26	34.18	1.63	25.52	247	0.30
95	14.08	34.39	1.10	2.10	26.8	0.02	22.9	228	100	14.03	34.42	1.03	25.75	225	0.36
115	13.37	34.50	0.72	2.36	31.8	0.0	27.5	206	150	12.56	34.65	0.40	26.24	179	0.47
134	12.51	34.55	0.57	2.34a)	30.0	0.01	30.2	186	200	12.20	34.69	0.31	26.33	170	0.56
154	12.61	34.69	0.38	2.68	-	-	-	178	250	10.99	34.78	0.21	26.63	142	0.64
183	12.42	34.69	0.38	2.94	32.1	0.01	35.7	175	300	10.22	34.66	0.16	26.67	138	0.71
217	11.94	34.70	0.26	2.64	-	-	-	165	400	8.97	34.59	0.22	26.82	124	0.84
247	11.07	34.78	0.22	2.66	-	-	-	144	500	7.40	34.50	0.20	26.98	108	0.97
297	10.3b)	34.67	0.15	2.74	32.6	0.0	41.9	139	600	6.43		0.29			
351	9.64	34.61	0.21	2.72	-	-	-	133							
435	8.40	34.55	0.22	2.90a)	34.4	0.0	55.4	118							
518	7.17	34.49	0.19	2.93	-	-	-	105							
603	6.40	-	0.29	3.13a)	44.5	0.0	75.6	-							

a) Duplicate values: 134 m., 2.47; 435, 2.78; 603, 3.07 µg. at./l.

b) Both protected thermometers at this level malfunctioned. Since an acceptable depth value was obtained, the temperature value was determined by calculation, using the unprotected thermometer reading.

Table 3.--Continued

STATION 46 (143.35) (con.)

Incident solar radiation: daily T 549 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 115.8 m., 1820 hr. (15'), 29 ml. T, 29 ml. S.

STATION 47 (147.20)

HUGH M. SMITH; August 26, 1959; 1047 G.c.t. (zone +7, 0347); 23°47.5'N., 110°59.5'W.; sounding, 95 fm., wind, 320°, force 1; temp., 76.0°F. dry, 72.1°F. wet; weather, partly cloudy; sea, rough; wire angle, 12°; BT slide No. 47A, 47B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
2	27.13	34.73	4.12	0.37				535	0	(27.13)	(34.73)	(4.12)	(22.50)	(535)	(0.00)
12	27.14	34.71	4.19	0.37				537	10	27.14	34.71	4.19	22.48	537	0.05
31	21.28	34.39	5.22	0.43				394	20	27.10	34.71	4.21	22.49	536	0.11
51	18.00	34.33	3.61	0.99				318	30	22.90	34.47	4.96	23.58	432	0.16
74	15.06	34.13	2.65	1.40				267	50	18.03	34.33	3.62	24.77	319	0.23
99	15.91	34.74	1.15	2.20				241	75	15.06	34.14	2.64	25.31	267	0.30
123	15.06	34.85	0.60	2.40				215	100	15.92	34.75	1.14	25.60	240	0.37
152	14.20	34.84	0.79	2.56				198	150	14.26	34.84	0.77	26.03	199	0.48

Incident solar radiation: daily T 605 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 109.4 m., 0358 hr. (17'), 139 ml. T, 139 ml. S.

STATION 48 (147.25)

HUGH M. SMITH; August 26, 1959; 1433 G.c.t. (zone +7, 0733); 23°37'N., 111°19'W.; sounding, 155 fm.; wind, 320°, force 2; temp., 76.4°F. dry, 71.1°F. wet; weather, partly cloudy; sea, rough; wire angle, 13°; BT slide No. 48A, 48B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	26.78	34.63	4.28	0.32				532	0	(26.78)	(34.63)	(4.28)	(22.53)	(532)	(0.00)
10	26.77	34.60	4.42	0.30				534	10	26.77	34.60	4.42	22.51	534	0.05
30	22.80	34.38	4.74	0.23				436	20	26.76	34.60	4.43	22.52	533	0.11
48	19.90	34.20	5.03	0.22				373	30	22.80	34.38	4.74	23.54	436	0.16
72	17.72	34.03	4.47	0.40				333	50	19.62	34.18	5.01	24.25	368	0.24
95	15.08	34.05	3.00	1.22				274	75	17.30	34.01	4.28	24.71	324	0.32
119	13.63	34.15	1.94	1.79				237	100	15.01	34.11	2.82	25.31	268	0.40
157	12.58	34.43	0.05u	2.33a)				196	150	12.59	34.37	1.12	26.01	201	0.51
195	12.36	34.63	0.64	2.56a)				178	200	12.29	34.64	0.62	26.27	176	0.61
243	11.78	34.69	0.24	2.72				162	250	(11.71)	(34.70)	(0.23)	(26.43)	(161)	(0.70)

a) Duplicate values: 157 m., 1.99; 195, 2.33 µg. at./l.

Table 3.--Continued

STATION 48 (147.25) (con.)

Incident solar radiation: daily T 605 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 118.0 m., 0637 hr. (13'), 158 ml. T, 158 ml. S.

STATION 49 (147.30)

HUGH M. SMITH; August 26, 1959; 1931 G.c.t. (zone +7, 1231); 23°36'N., 111°49'W.; sounding, 385 fm.; wind, 340°, force 4; temp., 78.8°F. dry, 71.5°F. wet; weather, cloudy; sea, very rough; wire angle, 08°; BT slide No. 49A, 49B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P ug.at./l.	NO_3-N ug.at./l.	NO_2-N ug.at./l.	SiO_3 ug.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
2	26.20	34.42	3.91	0.15a)	0.2	0.0	1.2	530	0	(26.20)	(34.42)	(3.91)	(22.55)	(530)	(0.00)
12	26.14	34.42	3.87	0.19	0.0	0.0	1.2	528	10	26.17	34.42	3.88	22.56	529	0.05
31	24.81	34.40	3.98	0.19	-	-	-	490	20	26.10	34.42	3.87	22.58	527	0.10
41	22.74	34.43	4.17	0.30	0.2	0.0	1.4	430	30	25.00	34.40	3.95	22.91	496	0.16
56	20.80	34.22	4.11	0.22	0.2	0.0	1.3	394	50	21.46	34.29	4.16	23.85	406	0.25
70	19.36	34.18	4.07	0.31	0.4	0.0	1.8	361	75	18.72	34.12	3.94	24.45	349	0.34
85	17.34	34.00	3.66	0.49	0.4	0.04	2.9	326	100	15.49	34.08	2.42	25.17	280	0.42
114	14.99	34.31	1.35	1.94	7.3	0.03	17.3	253	150	12.66	34.61	0.43	26.18	185	0.54
133	13.36	34.31	1.06	2.00a)	-	0.01	22.8	220	200	11.91	34.64	0.35	26.34	169	0.63
153	12.60	34.63	0.40	2.57	-	-	-	182	250	11.13	34.66	0.32	26.50	154	0.71
183	12.46	34.61	0.42	2.62	55.2	0.0	31.9	181	300	10.17	34.62	0.17	26.66	140	0.79
214	11.50	34.67	0.29	2.73	-	-	-	159	400	9.03	34.55	0.16	26.78	127	0.93
245	11.20	34.66	0.32	2.71a)	-	-	-	155	500	8.06	34.50	0.20	26.89	117	1.06
294	10.24	34.63	0.16	2.78a)	-	0.0	38.4	141	600	(7.84)		(0.19)			
348	9.62	34.60	0.19	2.80a)	-	-	-	133							
430	8.66	34.51	0.16	2.92a)	57.1	0.01	50.9	125							
514	7.96	34.50	0.21	2.92	-	-	-	115							
598	7.84	34.47u	0.19	3.04a)	63.0	0.0	59.0	-							

Incident solar radiation: daily T 605 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1248-1330 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
3°	5	801	5		
8°	10	688	10	5-10	0.0304
14°	20	523	19	10-19	0.0304
25°	25	473	23	19-23	0.0252
28°	30	416	26	23-26	0.0427
27°	40	324	36	26-36	0.0250
30°	50	202	43	36-43	0.0676
32°	60	143	51	43-51	0.0431

a) Duplicate values: 2 m., 0.21; 133, 2.20; 245, 2.65; 294, 2.72; 348, 2.88; 430, 2.82; 598, 2.96 μg. at./l.

Table 3.--Continued

STATION 49 (147.30) (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.037
10	0.035
25	0.026
50	0.062
75	0.12
100	0.12
125	0.058
150	0.109

Water column: 6.8 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 111.4 m., 1330 hr. (15'), 24 ml. T, 24 ml. S.

STATION 50 (147.35)

HUGH M. SMITH; August 26, 1959; zone +7, 1622-1655; 23°26'N., 112°00.5'W.; sounding, 1600 fm.; wind, 340°, force 1; temp., 80.0°F. dry, 72.5°F. wet; weather, 02; clouds, 8, 6, amt., 4; sea, 5; swell, 330°, 6 ft., 6 sec.; BT slide No. 50A, 50B.

Observations at 1530 (2230 G.c.t.) at 10 m.: temperature, 26.43°C.; salinity, 34.51‰.

Incident solar radiation: daily T 605 g.-cal./cm.^{2}.

Biological Data

Zooplankton: N-C N, o to 98.4 m., 1540 hr. (15'), 13 ml. T, 13 ml. S.

Table 3.--Continued

STATION 51 (147.40)

HUGH M. SMITH; August 27, 1959; 0215 G.c.t. (zone +7, 1915, VIII-26); 23°20.5'N., 112°15.5'W.; sounding, 1900 fm.; wind, 330°, force 3; temp., 77.9°F. dry, 71.3°F. wet; weather, partly cloudy; sea, rough; wire angle, 13°; BT slide No. 51A, 51B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg at./l.	NO_3-N µg at./l.	NO_2-N µg at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
2	25.94	34.41	4.23	0.27				523	0	(25.94)	(34.41)	(4.23)	(22.63)	(523)	(0.00)
11	25.96	34.38	4.25	0.21				525	10	25.95	34.38	4.25	22.60	525	0.05
31	24.74	34.31	4.20	–				495	20	25.93	34.38	4.25	22.61	524	0.10
40	23.22	34.22	4.49	0.23				459	30	24.80	34.31	4.20	22.90	496	0.16
54	19.79	–	–	0.26a)				–	50	20.58	34.06	4.85	23.92	400	0.24
69	18.40	33.96	4.92	0.34				354	75	17.40	33.94	4.67	24.63	332	0.34
92	15.70	34.22	2.55	1.36				274	100	15.56	34.31	2.06	25.34	264	0.41
112	14.73	34.59	0.80	2.44a)				227	150	13.06	34.59	0.56	26.08	194	0.53
131	13.39	34.47	0.82	2.22a)				209	200	12.12	34.71	0.16	26.36	167	0.62
150	13.06	34.59	0.56	2.56				194	250	11.13	34.69	0.25	26.54	151	0.70
180	12.53	34.70	0.24	2.62				177	300	10.30	34.60	0.17	26.62	143	0.78
213	11.85	34.71	0.16	2.79				163	400	8.80	34.51	0.20	26.79	127	0.92
241	11.30	34.70	0.29	2.58a)				153	500	7.38	34.47	0.18	26.97	110	1.04
288	10.46	34.63	0.16	2.89a)				145	600	(6.14)	(34.42)	(0.26)	(27.10)	(97)	(1.15)
343	9.82	34.58	0.21	2.65				138							
423	8.42	34.51	0.19	2.87				122							
507	7.31	34.47	0.18	2.99				109							
591	6.26	34.43	0.26	3.11				98							

Incident solar radiation: daily T 605 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 118.4 m., 1806 hr. (15'), 27 ml. T, 27 ml. S.

STATION 52 (147.45)

HUGH M. SMITH; August 26-27, 1959; zone +7, 2300-0044; 23°10'N., 112°39.5'W.; sounding, 1900 fm.; wind, 320°, force 2; temp., 77.0°F. dry, 71.1°F. wet; weather, 02; clouds, 6, amt., 3; sea, 4; swell, 330°, 5 ft., 5 sec.; BT slide No. 52A, 52B.

Observations at 0010 (0710 G.c.t.) at 10 m.: temperature, 26.44°C.; salinity, 34.64‰ .

Incident solar radiation: daily T 605 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.026
50	0.68
100	0.047

Water column: 38 mg./m.^{2}

Zooplankton: N-C N, o to 100.0 m., 2340 hr. (16'), 133 ml. T, 133 ml. S.

Micronekton: o to 99 m., 2242 hr. (49'), 1629 ml. T w/o jellies.

a) Duplicate values: 54 m., 0.14; 112, 2.36; 131, 2.34; 241, 2.83; 288, 2.58 µg. at./l.

Table 3.--Continued

STATION 53 (147.50)

HUGH M. SMITH; August 27, 1959; 1040 G.c.t. (zone +7, 0340); 23°02'N., 113°00'W.; sounding, 1900 fm.; wind, 320°, force 2; temp., 75.1°F. dry, 69.4°F. wet; weather, partly cloudy; sea, moderate; wire angle, 06°; BT slide No. 53A, 53B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.26	34.42u	4.43	0.25				-	0	(25.26)	(34.14)	(4.43)	(22.64)	(522)	(0.00)
11	25.29	34.14	4.46	0.22				523	10	25.28	(34.14)	4.46	(22.63)	(523)	(0.05)
31	21.67	34.14	4.89	0.36a)				423	20	25.29	34.14	4.46	22.63	523	(0.10)
41	18.34	33.93	5.15	0.32				355	30	23.50	34.14	4.66	23.16	472	(0.15)
55	15.64	33.80	4.56	0.53				304	50	17.31	34.00	4.98	24.70	326	(0.23)
70	14.05	33.79	3.56	1.03				272	75	13.91	33.83	3.35	25.32	266	(0.31)
95	12.58	34.02	2.28	1.70a)				226	100	12.02	34.20	1.07	25.98	203	(0.37)
115	13.10	34.63	0.61	2.51				191	150	12.42	34.76	0.22	26.34	170	(0.46)
134	12.50	34.70	0.37	2.42a)				175	200	11.53	34.67	0.20	26.45	159	(0.55)
153	12.40	34.76	0.21	2.67				169	250	10.93	34.64	0.16	26.53	151	(0.62)
183	11.82	34.70	0.24	2.72				163	300	10.33	34.62	0.14	26.62	143	(0.70)
218	11.26	34.65	0.16	2.64a)				156	400	8.77	34.56	0.20	26.83	123	(0.84)
247	10.96	34.64	0.16	2.70				152	500	7.49	34.49	0.17	26.96	110	(0.96)
297	10.38	34.62	0.14	2.83a)				144	600	6.38	34.52	0.21	27.14	93	(1.07)
352	9.54	-	0.16	2.83				-							
435	8.22	34.52	0.21	2.95				118							
518	7.31	34.48	0.16	3.34a)				108							
603	6.34	34.52	0.21	3.16a)				92							

Incident solar radiation: daily T 365 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 113.8 m., 0400 hr. (15'), 126 ml. T, 126 ml. S.

STATION 54 (147.55)

HUGH M. SMITH; August 27, 1959; zone +7, 0640-0725; 22°54'N., 113°18.5'W.; sounding, 1850 fm.; wind, 330°, force 1; temp. 75.1°F. dry, 69.3°F. wet; weather, 02; clouds, 6, amt., 3; sea, 4; swell, 330°, 4 ft., 6 sec.; BT slide No. 54A, 54B.

Observations at 0730 (1430 G.c.t.) at 10 m.: temperature, 25.22°C.; salinity, 34.37‰ .

Incident solar radiation: daily T 365 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 98.0 m., 0646 hr. (14'), 80 ml. T, 80 ml. S.

a) Duplicate values: 31 m., 0.30; 95, 1.80; 134, 2.85; 218, 2.77; 297, 2.73; 518, 3.21; 603, 3.04 µg. at./l.

Table 3.--Continued

STATION 55 (147.60)

HUGH M. SMITH; August 27, 1959; 1845 G.c.t. (zone +7, 1145); 22°40'N., 113°35'W.; sounding, 2000 fm.; wind, 320°, force 3; temp., 76.2°F. dry, 69.8°F. wet; weather, cloudy; sea, rough; wire angle, 07°; BT slide No. 55A, 55B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	26.22	34.54	4.27	0.44				522	0	(26.22)	(34.54)	(4.27)	(22.64)	(522)	(0.00)
11	26.22	34.54	4.11	0.46				522	10	26.22	34.54	4.11	22.64	522	0.05
31	22.13	34.27	4.65	0.51				425	20	26.22	34.54	4.11	22.64	522	0.10
40	18.86	34.11	4.76	0.55				354	30	25.20	34.47	4.22	22.90	496	0.16
55	16.48	34.04	3.93	0.87				304	50	17.19	34.05	4.31	24.76	319	0.24
70	14.76	34.07	2.74	1.43				266	75	14.32	34.15	2.02	25.49	250	0.31
94	14.83	34.60	0.87	2.32				229	100	14.41	34.61	0.70	25.82	219	0.37
113	13.48	34.58	0.58	2.53				202	150	12.28	34.59	0.43	26.24	179	0.47
133	12.66	34.57	0.47	2.47a)				187	200	11.46	34.64	0.32	26.43	161	0.55
153	12.21	34.60	0.42	2.69a)				177	250	10.86	34.69	0.15	26.58	146	0.63
182	11.62	34.61	0.30	2.67				166	300	10.12	34.62	0.16	26.66	139	0.71
216	11.33	34.67	0.35	2.81a)				156	400	8.70	34.57	0.12	26.86	120	0.84
245	10.92	34.69	0.14	2.81a)				147	500	7.42	34.52	0.17	27.00	106	0.96
294	10.20	34.63	0.16	2.83				140	600	6.47	34.50	0.18	27.12	95	1.07
349	9.44	34.61	0.18	2.81a)				130							
432	8.24	34.55	0.11	3.00				116							
515	7.30	34.53	0.19	3.10a)				104							
601	6.45	34.50	0.18	2.90a)				95							

Incident solar radiation: daily T 365 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1207-1230 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
0°	5	145	5		
12°	10	117	10	5-10	0.0430
18°	20	80.4	19	10-19	0.0417
18°	25	65.2	24	19-24	0.0420
15°	30	50.8	29	24-29	0.0498
15°	40	23.0	39	29-39	0.0793
15°	50	9.3	48	39-48	0.100

a) Duplicate values: 133 m., 2.57; 153, 2.63; 216, 2.67; 245, 2.88; 349, 2.88; 515, 2.98; 601, 3.10 µg. at./l.

Table 3.--Continued

STATION 55 (147.60) (con.)

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.052
10	0.048
25	0.042
50	0.21
75	0.18
100	0.062
125	0.047
150	0.051

Water column: 12 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 75.4 m., 0957 hr. (13'), 100 ml. T, 100 ml. S.

STATION 56 (150.60)

HUGH M. SMITH; August 28, 1959; 0115 G.c.t. (zone +7, 1815, VIII-27); 22°02'N., 113°14'W.; sounding, 2000 fm.; wind, 020°, force 2; temp., 77.8°F. dry, 70.9°F. wet; weather, overcast; sea, rough; wire angle, 10°; BT slide No. 56A, 56B.

OBSERVED									INTERPOLATED				COMPUTED		
epth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	24.68	34.16	4.33	0.24				504	0	(24.68)	(34.16)	(4.33)	(22.82)	(504)	(0.00)
11	24.67	34.17	4.25	0.24				502	10	24.67	34.17	4.25	22.84	502	0.05
30	23.23	34.23	4.44	0.27				458	20	24.67	34.17	4.25	22.84	502	0.10
59	19.22	34.07	4.91	0.29				366	30	23.23	34.23	4.44	23.30	458	0.15
69	17.96	33.95	4.72	0.35				344	50	19.99	34.11	4.91	24.10	382	0.23
83	15.73	33.91	3.80	0.81				298	75	16.75	33.88	4.37	24.74	322	0.32
98	14.26	33.86	3.21	1.14				270	100	14.00	33.91	2.88	25.37	262	0.40
113	14.14	34.25	1.75	1.97				240	150	13.04	34.62	0.54	26.10	192	0.51
136	13.06	34.45	0.79	2.43a)				204	200	12.35	34.74	0.31	26.34	169	0.60
156	13.04	34.67	0.45	2.71a)				188	250	10.94	34.65	0.18	26.54	151	0.68
186	12.68	34.74	0.35	2.75				175	300	9.89	34.57	0.26	26.66	139	0.76
214	11.95	34.72	0.26	2.76				164	400	8.52	34.52	0.19	26.84	122	0.90
243	11.10	34.66	0.18	2.75				153	500	7.19	34.47	0.17	26.99	108	1.02
292	10.05	34.59	0.24	2.80				141	600	(6.12)	(34.48)	(0.18)	(27.14)	(93)	(1.12)
345	9.24	34.54	0.22	2.77				132							
427	8.14	34.51	0.16	2.96				117							
511	7.07	34.46	0.18	3.11				106							
595	6.17	34.47	0.18	3.16				94							

ncident solar radiation: daily T 365 g.-cal./cm.^{2} .

Biological Data

ooplankton: N-C N, o to 114.4 m., 1705 hr. (15'), 53 ml. T, 53 ml. S.

a) Duplicate values: 136 m., 2.31; 156, 2.63 µg. at./l.

Table 3.--Continued

STATION 57 (150.55)

HUGH M. SMITH; August 27, 1959; zone +7, 2041-2116; 22°14'N., 112°54'W.; sounding, 1900 fm.; wind, 330°, force 1; temp., 75.9°F. dry, 72.0°F. wet; weather, 01; clouds, 6, amt., 3; sea, 4; swell, 330°, 4 ft., 7 sec.; BT slide No. 57A, 57B.

Observations at 2110 (0410 G.c.t., VIII-28) at 10 m.: temperature, 24.88°C.; salinity, 34.18‰.

Incident solar radiation: daily T 365 g.-cal./cm.^{2}.

Biological Data

Zooplankton: N-C N, o to 110.2 m., 2044 hr. (18'), 79 ml. T, 79 ml. S.

STATION 58 (150.50)

HUGH M. SMITH; August 28, 1959; 0816 G.c.t. (zone +7, 0116); 22°27.5'N., 112°32'W.; sounding, 1840 fm.; wind, 320°, force 3; temp., 76.6°F. dry, 72.5°F. wet; weather, partly cloudy; sea, moderate; wire angle, 04°; BT slide No. 58A, 58B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	25.08	34.25	4.51	0.27				509	0	(25.08)	(34.25)	(4.51)	(22.78)	(509)	(0.00)
11	25.02	34.27	4.43	0.27				506	10	25.04	34.27	4.44	22.80	507	0.05
31	23.42	34.04	4.70	0.27				478	20	24.90	34.26	4.44	22.84	503	0.10
40	21.52	33.93	5.50	0.28a)				434	30	23.85	34.10	4.60	23.02	485	0.15
55	18.68	34.01	4.75	0.30				357	50	19.38	34.01	5.01	24.19	374	0.24
70	16.82	33.94	4.68	0.44a)				319	75	16.68	33.94	4.62	24.80	316	0.32
94	15.36	34.23	2.42	1.56				266	100	14.80	34.26	2.11	25.46	253	0.40
114	13.70	34.25	1.75	2.01				231	150	12.90	34.57	1.00	26.10	192	0.51
133	13.59	34.54	0.87	2.40a)				207	200	11.10	34.53	0.69	26.42	162	0.60
153	11.44	34.38	1.15	2.74				180	250	10.56	34.63	0.35	26.58	146	0.68
182	11.32	34.49	0.79	2.45				169	300	9.89	34.59	0.24	26.67	138	0.75
217	10.80	34.85u	0.66	2.59				-	400	8.48	34.53	0.18	26.86	120	0.89
251	10.54	34.63	0.34	2.65				146	500	7.16	34.50	0.18	27.02	104	1.00
300	9.89	34.59	0.24	2.77a)				138	600	6.32	34.51	0.16	27.15	93	1.11
351	9.21	34.57	0.16	2.82				129							
433	7.93	34.49	0.22	2.98a)				116							
517	6.98	34.51	0.16	3.10a)				101							
602	6.30	34.51	0.16	3.18a)				92							

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.035
50	0.14
100	0.25

Water column: 15 mg./m.^{2}

Zooplankton: N-C N, o to 89.6 m., 0200 hr. (15'), 111 ml. T, 111 ml. S.

Micronekton: o to 93 m., 2336 hr. (46'), 702 ml. T w/o jellies.

a) Duplicate values: 40 m., 0.36; 70, 0.50; 133, 2.26; 300, 2.87; 433, 2.90; 517, 2.71; 602, 3.10 µg. at./l.

STATION 59 (150.45)

UGH M. SMITH; August 28, 1959; zone +7, 0438-0520; 22°41'N., 112°12'W.; sounding, 1900 fm.; wind, 360°, force 1; temp., .9°F. dry, 73.0°F. wet; weather, 02; clouds, 6, 0, amt., 6; sea, 3; swell, 360°, 4 ft., 6 sec.; BT slide No. 59A, 59B.

bservations at 0455 (1155 G.c.t.) at 10 m.: temperature, 26.55°C.; salinity, 34.56‰.

cident solar radiation: daily T 487 g.-cal./cm.^{2}.

Biological Data

ooplankton: N-C N, o to 111.4 m., 0437 hr. (18'), 72 ml. T, 72 ml. S.

STATION 60 (150.40)

UGH M. SMITH; August 28, 1959; 1445 G.c.t. (zone +7, 0745); 22°48'N., 111°59.5'W.; sounding, 1850 fm.; wind, 330°, force 2; mp., 77.8°F. dry, 73.3°F. wet; weather, cloudy; sea, moderate; wire angle, 02°; BT slide No. 60A, 60B.

OBSERVED									INTERPOLATED				COMPUTED		
epth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	26.81	34.54	4.22	0.31				540	0	(26.81)	(34.54)	(4.22)	(22.45)	(540)	(0.00)
11	26.84	34.55	4.14	0.23				540	10	26.83	34.55	4.15	22.45	540	0.05
31	23.98	34.39	4.54	0.28				467	20	26.80	34.55	4.14	22.46	539	0.11
41	22.76	34.41	4.68	0.28				432	30	24.30	34.39	4.50	23.12	476	0.16
55	20.65	34.22	4.78	0.30				391	50	21.44	34.29	4.76	23.85	406	0.25
70	19.02	34.12	4.62	0.38				358	75	18.88	34.19	4.48	24.45	349	0.34
95	17.34	34.70	1.89	1.90				275	100	17.24	34.72	1.79	25.26	272	0.42
114	15.50	34.64	1.57	2.18				239	150	14.19	34.81	0.69	26.02	200	0.54
134	14.90	34.75	0.93	2.41a)				219	200	11.93	34.64	0.39	26.34	169	0.63
154	14.01	34.82	0.64	2.69a)				196	250	10.81	34.63	0.27	26.54	150	0.72
183	12.64	34.70	0.37	2.64				178	300	10.17	34.64	0.21	26.66	139	0.79
218	11.33	34.60	0.45	2.59				161	400	8.84	34.55	0.17	26.82	124	0.93
247	10.85	34.63	0.29	2.73a)				151	500	7.75	34.53	0.17	26.96	111	1.05
297	10.20	34.64	0.21	2.79				139	600	6.59	34.50	0.14	27.10	97	1.16
351	9.47	34.60	0.16	2.71a)				130							
435	8.42	34.51	0.18	3.01				122							
519	7.58	34.54	0.16	3.10				107							
603	6.54	34.50	0.14	3.28a)				96							

ncident solar radiation: daily T 487 g.-cal./cm.^{2}.

Biological Data

ooplankton: N-C N, o to 98.6 m., 0638 hr. (18'), 76 ml. T, 76 ml. S.

) Duplicate values: 134 m., 2.31; 154, 2.61; 247, 2.61; 351, 2.90; 603, 2.82 µg. at./l.

Table 3.--Continued

STATION 61 (150.35)

HUGH M. SMITH; August 28, 1959; 1725 G.c.t. (zone +7, 1025); 22°54'N., 111°41.5'W.; sounding, 1750 fm.; wind, 340°, force 3; temp., 80.0°F. dry, 75.0°F. wet; weather, cloudy; sea, rough; wire angle, 05°; BT slide No. 61A, 61B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	26.92	34.56	4.49	0.38				541	0	(26.92)	(34.56)	(4.49)	(22.44)	(541)	(0.00)
11	26.85	34.56	4.30	0.31				540	10	26.87	34.56	4.31	22.45	540	0.05
30	24.77	34.43	4.65	0.29				487	20	26.78	34.56	4.30	22.48	537	0.11
40	23.85	34.40	4.70	0.32				463	30	24.77	34.43	4.65	23.00	487	0.16
55	21.0	34.12	5.04	0.27				406	50	22.2	34.24	4.93	23.59	431	0.25
69	19.22	34.01	5.00	0.30				370	75	19.06	34.01	4.96	24.27	366	0.35
94	15.98	34.13	2.90	1.33				286	100	15.86	34.16	2.83	25.16	282	0.43
113	13.61	34.04	2.49	1.64				245	150	13.85	34.70	0.59	26.01	201	0.55
133	13.59	34.44	1.06	2.11a)				215	200	12.21	34.72	0.22	26.35	168	0.65
152	13.84	34.72	0.55	2.65a)				200	250	11.28	34.74	0.16	26.54	150	0.73
181	12.76	34.72	0.29	2.74a)				178	300	10.22	34.63	0.19	26.64	141	0.81
215	11.86	34.74	0.19	2.80				160	400	8.83	34.57	0.16	26.83	123	0.94
244	11.39	34.75	0.16	2.76				151	500	7.60	34.50	0.16	26.96	110	1.07
293	10.34	34.63	0.19	2.81				142	600	(6.56)	(34.47)	(0.26)	(27.08)	(99)	(1.18)
346	9.56	34.61	0.16	2.75				131							
429	8.45	34.54	0.16	2.95				120							
513	7.42	34.50	0.16	3.05				108							
597	6.58	34.47	0.26	3.14				99							

Incident solar radiation: daily T 487 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1235-1315 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector µa.	Photometer Depth m.	Depth Interval m.	Attenuation Coeffieient k
0°	5	852	5		
5°	10	717	10	5-10	0.0346
5°	20	566	20	10-20	0.0237
10°	25	485	25	20-25	0.0308
10°	30	425	30	25-30	0.0264
15°	40	311	39	30-39	0.0347
15°	50	215	48	39-48	0.0410
15°	60	133	58	48-58	0.0481
15°	70	79.6	68	58-68	0.0513
15°	80	48.3	77	68-77	0.0556
15°	90	21.7	87	77-87	0.0800
20°	100	11.2	94	87-94	0.0944
25°	110	6.3	100	94-100	0.0960

a) Duplicate values: 133 m., 2.69; 152, 2.55; 181, 2.65 µg. at./l.

STATION 61 (150.35) (con.)

Biological Data

ytoplankton:

epth m.	Chlorophyll a mg./m.^{3}
0	0.025
10	0.020
25	0.017
50	0.040
75	0.060
00	0.080
25	0.043
50	0.027

ater column: 4.4 mg./m.^{2}

ytoplankton haul taken.

oplankton: N-C N, o to 91.6 m., 1205 hr. (15'), 18 ml. T, 18 ml. S.

STATION 62 (150.30)

UGH M. SMITH; August 28, 1953; 2330 G.c.t. (zone +7, 1630); 23°02'N., 111°21'W.; sounding, 1500 fm.; wind, 350°, force 2; mp., 84.9°F. dry, 77.5°F. wet; weather, overcast; sea, moderate; wire angle, 10°; BT slide No. 62A, 62B.

OBSERVED									INTERPOLATED				COMPUTED		
epth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	27.34	34.51	4.33	0.42				558	0	(27.34)	(34.51)	(4.33)	(22.26)	(558)	(0.00)
11	26.76	34.49	4.12	0.31				541	10	26.76	34.49	4.12	22.44	541	0.06
30	24.68	34.33	4.62	0.55a)				492	20	26.72	34.49	4.12	22.45	540	0.11
40	23.68	34.38	4.70	0.39				459	30	24.68	34.33	4.62	22.95	492	0.16
54	21.7	34.39	4.68	0.37				406	50	22.3	34.39	4.68	23.70	421	0.25
69	19.05	34.06	5.02	0.39				363	75	17.78	33.98	4.69	24.56	339	0.35
93	15.97	34.00	3.75	0.99a)				295	100	15.65	34.04	3.40	25.11	286	0.43
13	15.52	34.52	1.56	2.05				248	150	13.99	34.78	0.49	26.04	198	0.55
32	15.10	34.78	0.98	2.59a)				220	200	12.22	34.68	0.38	26.33	171	0.64
51	13.96	34.78	0.48	2.64				197	250	11.23	34.68	0.20	26.50	154	0.72
80	12.98	34.76	0.47	2.69				179	300	10.38	34.62	0.26	26.61	144	0.80
13	11.88	34.66	0.27	2.75				166	400	9.05	34.59	0.18	26.80	125	0.94
42	11.36	34.68	0.19	2.72				156	500	7.67	34.53	0.17	26.97	109	1.07
89	10.52	34.62	0.27	2.69				146	600	(6.69)	(34.61)	(0.19)	(27.09)	(98)	(1.18)
43	9.86	34.62	0.19	2.76				135							
26	8.66	34.56	0.18	2.95				121							
09	7.55	34.52	0.16	3.06				108							
92	6.76	34.51	0.19	3.13a)				98							

Duplicate values: 30 m., 0.35; 93, 0.91; 132, 2.36; 592, 3.07 µg. at./l.

Table 3.--Continued

STATION 62 (150.30) (con.)

Incident solar radiation: daily T 487 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 100.6 m., 1645 hr. (15'), 27 ml. T, 27 ml. S.

STATION 63 (150.25)

HUGH M. SMITH; August 29, 1959; 0550 G.c.t. (zone +7, 2250, VIII-28); 23°12'N., 111°40'W.; sounding, 700 fm.; wind, 330°, force 3; temp., 80.1°F. dry, 76.2°F. wet; weather, rain; sea, slight; wire angle, 11°; BT slide No. 63A, 63B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P ug.at./l.	NO_3-N ug.at./l.	NO_2-N ug.at./l.	SiO_3 ug.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	27.18	34.42	4.19	0.64a)				559	0	(27.18)	(34.42)	(4.19)	(22.25)	(559)	(0.00)
11	26.60	34.43	4.25	0.33a)				541	10	26.61	34.43	4.24	22.43	542	0.06
30	23.94	34.38	4.72	0.30a)				467	20	26.54	34.43	4.25	22.46	539	0.11
40	21.49	34.15	4.97	0.30a)				417	30	23.94	34.38	4.72	23.21	467	0.16
54	19.9	34.21	4.72	0.44				372	50	20.02	34.19	4.73	24.17	376	0.24
69	17.39	33.96	4.60	0.49				330	75	16.40	34.00	3.94	24.92	305	0.33
93	15.34	34.10	2.89	1.38				275	100	15.02	34.24	2.18	25.39	259	0.40
112	15.16	34.56	1.19	2.34				238	150	14.30	34.81	0.91	26.00	202	0.52
131	14.88	34.78	0.67	2.40				216	200	13.06	34.83	0.32	26.27	176	0.61
150	14.30	34.81	0.91	2.59				202	250	12.28	34.83	0.17	26.43	161	0.70
179	13.41	34.81	0.34	3.02a)				184	300	11.08	34.70	0.18	26.54	150	0.78
213	12.88	34.84	0.34	2.69				172	400	9.01	34.54	0.18	26.77	128	0.93
242	12.42	-	0.24	2.52a)				-	500	7.74	34.53	0.18	26.96	110	1.05
290	11.30	34.72	0.19	2.91				152	600	(6.67)	(34.52)	(0.20)	(27.11)	(96)	(1.16)
343	10.21	-	0.19	2.75				-							
426	8.57	34.52	0.18	3.00				122							
508	7.66	34.53	0.18	3.05				109							
592	6.76	34.52	0.19	3.13a)				97							

Incident solar radiation: daily T 487 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 108.8 m., 2020 hr. (14'), 70 ml. T, 70 ml. S.

a) Duplicate values: 1 m., 0.41; 11, 0.47; 30, 0.40; 40, 0.40; 179, 3.15; 242, 2.71; 592, 3.03 µg. at./l.

Table 3.--Continued

STATION 64 (150.19)

HUGH M. SMITH; August 29, 1959; 0829 G.c.t. (zone +7, 0129); 23°24'N., 110°39'W.; sounding, 225 fm.; wind, 060°, force 2; temp., 81.0°F. dry, 77.2°F. wet; weather, cloudy; sea, slight; wire angle, 03°; BT slide No. 64A, 64B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	27.58	34.72	4.28	0.29				550	0	(27.58)	(34.72)	(4.28)	(22.34)	(550)	(0.00)
11	27.16	34.64	4.27	0.29				542	10	27.18	34.65	4.27	22.42	543	0.05
31	19.68	34.16	4.81	0.35a)				370	20	21.20	34.21	4.70	23.86	405	0.10
51	18.62	34.37	3.69	0.67				330	30	20.40	34.18	4.78	24.05	387	0.14
75	18.01	34.78	1.81	1.31				286	50	18.60	34.36	3.69	24.65	330	0.21
99	16.87	34.83	1.35	1.50				255	75	18.01	34.78	2.04	25.11	286	0.29
124	16.38	34.84	1.33	1.56				244	100	16.89	34.84	1.34	25.44	255	0.36
163	14.81	34.75	0.79	1.78				217	150	15.98	34.86	1.17	25.66	234	0.48
202	13.02	34.75	0.34	1.89				182	200	13.12	34.75	0.34	26.20	183	0.59
251	11.76	34.76	0.27	1.89a)				157	250	11.78	34.76	0.27	26.47	157	0.68
300	10.94	34.70	0.18	2.00				147	300	10.94	34.70	0.18	26.57	147	0.76

Incident solar radiation: daily T 487 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.059
50	0.17
100	0.050

Water column: 13 mg./m.^{2}

Zooplankton: N-C N, o to 93.2 m., 0155 hr. (15'), 126 ml. T, 126 ml. S.

Micronekton: o to 85 m., 2324 hr. (58'), 29 ml. T w/o jellies.

a) Duplicate values: 31 m., 0.19; 251, 1.81 µg. at./l.

Table 3.--Continued

STATION 65 (153.25)

HUGH M. SMITH; August 29, 1959; 1430 G.c.t. (zone +7, 0730); 22°39.5'N., 110°35.5'W.; sounding, 1300 fm.; wind, 120°, force 4; temp., 83.6°F. dry, 78.8°F. wet; weather, partly cloudy; sea, moderate; wire angle, 08°; BT slide No. 65A, 65B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	28.47	34.56	4.17	0.15				589	0	(28.47)	(34.56)	(4.17)	(21.94)	(589)	(0.00)
11	28.54	34.58	4.11	0.15				590	10	28.53	34.58	4.12	21.93	590	0.06
30	22.63	34.29	4.88	0.18				438	20	27.35	34.52	4.28	22.27	557	0.12
40	21.60	34.29	4.68	0.19				410	30	22.63	34.29	4.88	23.52	438	0.16
55	19.43	34.22	4.38	0.55a)				360	50	20.00	34.24	4.48	24.20	373	0.25
69	17.42	34.19	3.24	0.90a)				315	75	16.90	34.29	2.47	25.02	296	0.33
93	15.90	34.54	0.99	2.01a)				255	100	15.57	34.57		25.52	246	0.40
112	14.52	34.60	0.51	2.07a)				222	150	13.22	34.72	0.35	26.15	188	0.51
132	13.56	34.56	0.56	2.34a)				205	200	12.07	34.71	0.18	26.37	167	0.60
151	13.20	34.72	0.34	2.62a)				187	250	11.37	34.72	0.16	26.51	154	0.68
179	12.44	34.72	0.24	2.55a)				173	300	10.83	34.77	0.16	26.65	140	0.76
213	11.92	34.71	0.16	2.58				163	400	9.33	34.61	0.15	26.79	127	0.90
242	11.48	34.70	0.16	2.57a)				156	500	7.85	34.53	0.13	26.96	111	1.03
290	10.97	34.78	0.16	2.67a)				142	600	(6.69)	(34.51)	(0.14)	(27.10)	(97)	(1.14)
343	10.17	34.71	0.13	2.61				134							
426	8.94	34.58	0.16	2.87				124							
510	7.70	-	0.13	3.00a)				-							
595	6.74	34.51	0.14	2.74a)				98							

Incident solar radiation: daily T 543 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 109.4 m., 0802 hr. (16'), 100 ml. T, 100 ml. S.

a) Duplicate values: 55 m., 0.41; 69, 0.96; 93, 2.08; 112, 2.32; 132, 2.47; 151, 2.28; 179, 2.69; 242, 2.68; 290, 2.96; 510, 3.08; 595, 3.15 µg. at./l.

Table 3.--Continued

STATION 66 (153.20)

HUGH M. SMITH; August 29, 1959; 1740, 1755 G.c.t. (zone +7, 1040, 1055); 22°46'N., 110°22.5'W.; sounding, 500 fm.; wind, 110°, force 3; temp., 85.5°F. dry, 78.4°F. wet; weather, partly cloudy; sea, rough; wire angle, 36°, [a] 35°; BT slide No. 66A, 66B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	30.00	34.30	4.06	0.12				657	0	(30.00)	(34.30)	(4.06)	(21.23)	(657)	(0.00)
10	28.82	-	4.03	0.17				-	10	28.82	34.32	4.03	21.64	618	0.06
26	23.98	34.46	4.43	0.28				462	20	26.00	34.38	4.32	22.58	527	0.12
33	22.42	-	4.28	0.36				-	30	23.00	34.57	4.37	23.63	427	0.17
46	20.90	34.83	3.37	0.91				353	50	19.45	34.87	2.50	24.82	314	0.24
58	19.60	34.93	2.49	1.27				313	75	18.28	34.80	1.96	25.07	290	0.32
77	18.11	34.79	1.89	1.77				287	100	16.50	34.82	1.04	25.52	248	0.39
									150	14.18	34.76	0.63	25.99	203	0.50
91	17.10	-	1.44	1.89b)				-	200	12.61	34.77	0.36	26.31	172	0.60
106	16.10	34.82	0.80	2.17				239	250	12.20	34.71	0.24	26.34	169	0.68
121	14.98	34.74	0.58	2.05b)				221	300	11.59	34.69	0.15	26.45	159	0.77
144	14.19	-	0.64	2.42				-	400	9.40	34.60	0.15	26.76	130	0.92
170	13.30	34.77	0.43	2.49				185	500	(7.68)		(0.16)			
194	12.67	34.77	0.37	2.59b)				173							
233	12.32	34.72	0.32	2.66b)				170							
277	11.98	-	0.14	2.50b)				-							
342	10.56	34.67	0.18	2.72b)				143							
421	9.02	34.57	0.13	2.83				126							
499	7.70	-	0.16	3.00b)				-							

Incident solar radiation: daily T 543 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1245-1332 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector µa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0°	5	690	5		
7°	10	613	10	5-10	0.0238
10°	20	451	19	10-19	0.0341
10°	25	354	25	19-25	0.0403
15°	30	272	29	25-29	0.0658
22°	40	158	37	29-37	0.0679
32°	50	84.7	42	37-42	0.125
25°	60	34.4	54	42-54	0.0751
25°	70	19.7	63	54-63	0.0619
	80	11.1	72	63-72	0.0638

a) Wire angle assumed to be 36° instead of 26° listed on original data sheet.

b) Duplicate values: 91 m., 1.95; 121, 2.21; 194, 2.49; 233, 2.54; 277, 2.63; 342, 2.54; 499, 2.92 µg. at./l.

Table 3.--Continued

STATION 66 (153.20) (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.042
10	0.086
25	0.032
50	0.12
75	0.052
100	0.042
125	0.033
150	0.035

Water column: 6.5 mg./m.^{2}

Phytoplankton haul taken.

STATION 67 (153.16)

HUGH M. SMITH; August 29, 1959; 2135 G.c.t. (zone +7, 1435); 22°55.5'N., 110°12.5'W.; sounding, 240 fm.; wind, 160°, force 2; temp., 90.1°F. dry, 81.8°F. wet; weather, partly cloudy; sea, moderate; wire angle, 25°; BT slide No. 67A, 67B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml./l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm./g.	Depth m.	T. °C.	S. ‰	O_2 ml./l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm./g.	ΔD dyn.m.
1	30.41	34.21	4.35	0.07				673	0	(30.41)	(34.21)	(4.35)	(21.06)	(673)	(0.00)
9	29.74	34.46	4.38	0.14				637	10	29.50	34.48	4.39	21.53	628	0.06
27	24.22	34.52	4.65	0.24a)				465	20	28.30	34.50	4.46	21.94	588	0.12
45	21.38	34.47	4.59	0.50				391	30	23.60	34.51	4.64	23.41	448	0.18
66	19.06	34.82	2.58	1.49				307	50	20.78	34.54	4.26	24.22	371	0.26
87	18.08	34.88	2.15	1.76a)				279	75	18.93	34.83	2.50	24.94	303	0.34
108	17.20	34.90	1.67	2.00				258	100	17.25	34.90	1.69	25.40	259	0.42
141	14.90	34.70	0.77	2.36a)				222	150	14.29	34.72	0.60	25.93	208	0.54
174	13.39	34.74	0.40	2.52a)				189	200	12.83	34.75	0.28	26.25	178	0.64
218	12.51	34.74	0.22	2.62a)				172	250	12.13	34.71	0.20	26.36	168	0.73
263	11.99	34.70	0.19	2.60				166	300	11.38	34.68	0.18	26.48	156	0.81
362	10.18	34.65	0.16	2.72				138							

Incident solar radiation: daily T 543 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 103.4 m., 1450 hr. (15'), 75 ml. T, 75 ml. S.

a) Duplicate values: 27 m., 0.68; 87, 1.66; 141, 2.26; 174, 2.62; 218, 2.47 µg. at./l.

Table 3.--Continued

STATION 68

HUGH M. SMITH; September 4, 1959; 1505 G.c.t. (zone +6, 0905); 18°39'N., 103°59.5'W.; sounding, 125 fm.; wind, 270°, force 3; temp., 83.1°F. dry, 77.1°F. wet; weather, partly cloudy; sea, slight; wire angle, 04°; BT slide No. 68A, 68B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth	T.	S.	O_2	PO_4-P	NO_3-N	NO_2-N	SiO_3	$\delta_{-5}T_3$	Depth	T.	S.	O_2	σ_t	$\delta_{-5}T_3$	ΔD
m.	°C.	‰	ml/l	μg.at./l.	μg.at./l.	μg.at./l.	μg at./l.	10cm/g.	m.	°C.	‰	ml/l.	g./l.	10cm/g.	dyn.m.
1	29.52	33.85	4.13	0.30	1.3	0.01		674	0	(29.52)	(33.85)	(4.13)	(21.05)	(674)	(0.00)
11	29.54	33.84	4.05	0.22a)	-	-		675	10	29.54	33.84	4.06	21.04	675	0.07
31	29.14	34.00	4.25	0.20	1.3	0.0		651	20	29.35	33.93	4.18	21.17	663	0.13
51	24.54	34.42	3.08	0.73	-	-		481	30	29.20	33.99	4.25	21.28	652	0.20
75	17.56	34.67	0.84	2.03	-	0.0		283	50	24.60	34.42	3.10	23.04	483	0.31
100	15.30	34.74	0.16	2.23a)	-	-		228	75	17.56	34.67	0.84	25.15	283	0.41
125	14.24	34.78	0.13	2.51a)	90.3	0.0		203	100	15.30	34.74	0.16	25.72	228	0.48
164	13.06	34.79	0.11	2.40a)	-	-		179	150	13.95	34.78	0.12	26.05	197	0.58
205	12.57	34.80	0.18	2.34a)	-	0.64		169	200	12.62	34.80	0.17	26.33	170	0.67

Submarine irradiance and attenuation coefficients at 1353-1420 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
-	5	640	5		
3°	10	466	10	5-10	0.0634
7°	20	231	20	10-20	0.0702
7°	25	184	25	20-25	0.0454
10°	30	157	29	25-29	0.0398
7°	40	87.2	40	29-40	0.0534
12°	50	36.9	49	40-49	0.0956
10°	60	11.3	59	49-59	0.118
-	65	4.88	64	59-64	0.168

Biological Data

Phytoplankton:

Depth	Chlorophyll a	Photosynthesis			
		Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles		In Situ mg. C/m.^{3}/day	
m.	mg./m.^{3}	Light	Dark	Light	Dark
0	0.072	0.036	0.027	1.27, 1.24	-
5	0.068	0.050	-	1.31, 1.27	0.132, 0.094
10	0.059	0.085	-	1.18, 1.086	-
20	0.063	0.650	-	0.786, 0.954	-
30	0.038	0.393	-	0.450, 0.542	-
40	0.062	0.516	-	0.636, 0.524	-
60	0.092	0.350	-	0.300, 0.450	-
80	0.050	0.149	-	0.0936, 0.0748	-
100	0.033	0.042	-	0.112, 0.131	-
150	0.041	-	0.041	0.0374, 0.0374	0.037, 0.037

Water column: 6 mg./m.^{2} 31.6 mg. C/m.^{2}/hr. 53.3 mg. C/m.^{2}/day

a) Duplicate values: 11 m., 0.30; 100, 2.31; 125, 2.35; 164, 2.21; 205, 2.09 μg. at./l.

STATION 68 (con.)

Phytoplankton haul taken.

Zooplankton: N-C N, o to 193 m., 1437 hr. (37'44"), 14.6 ml. T, 10.7 ml. S; H at 146 m., 1154 hr. (16'), 2.53 ml. T, 2.53 ml. S; H at 74 m., 1230 hr. (16'), 2.98 ml. T, 0.83 ml. S; H at 25 m., 1321 hr. (16'), 22.06 ml. T, 22.06 ml. S.

STATION 69

HUGH M. SMITH; September 7, 1959; 0822 G.c.t. (zone +6, 0222); 15°39'N., 97°00'W.; sounding, 700 fm.; wind, 040°, force 1; temp., 84.4°F. dry, 78.1°F. wet; weather, partly cloudy; sea, moderate; wire angle, 03°; BT slide No. 69A, 69B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	29.38	33.60	3.95	0.10				687	0	(29.38)	(33.60)	(3.95)	(20.91)	(687)	(0.00)
11	29.40	33.62	3.98	0.08				687	10	29.40	33.62	3.98	20.92	687	0.07
31	29.26	33.66	3.93	0.13				680	20	29.35	33.64	3.97	20.95	684	0.14
55	23.07	34.46	1.84	0.95				437	30	29.27	33.66	3.94	20.99	680	0.20
70	18.45	34.63	0.46	1.64				306	50	27.80	33.88	3.36	21.66	617	0.34
84	15.58	34.74	0.13	1.84				234	75	17.30	34.67	0.25	25.21	276	0.45
99	14.73	34.78	0.15	1.91				212	100	14.72	34.78	0.16	25.89	212	0.51
129	13.31	34.83	0.18	2.01a)				181	150	12.96	34.83	0.15	26.29	174	0.60
153	12.92	34.83	0.13	1.80a)				173	200	12.36	34.82	0.13	26.40	164	0.69
178	12.60	34.82	0.18	1.90				168	250	11.74	34.80	0.15	26.50	154	0.77
213	12.20	34.83	0.11	2.28a)				160	300	11.02	34.76	0.16	26.60	144	0.85
277	11.38	34.78	0.16	2.02				149	400	9.30	34.67	0.13	26.83	123	0.99
375	9.73	34.69	0.11	3.12				128	500	7.80	34.60	0.18	27.02	105	1.12
474	8.14	34.61	0.18	3.34a)				110	600	6.75	34.58	0.18	27.14	93	1.22
608	6.68	34.58	0.18	3.45				92	700	6.05	34.56	0.17	27.22	86	1.32
759	5.70	34.55	0.16	3.76a)				82	800	5.43	34.55	0.17	27.29	79	1.41
907	4.80	34.56	0.20	3.61				72	1000	4.40	34.57	0.32	27.42	66	1.58
1116	4.09	34.58	0.46	3.62				62							

Incident solar radiation: daily T 441 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 146 m., 0300 hr. (50'5"), 25.9 ml. T, 17.3 ml. S; H at 0 m., 0400 hr. (15'15"), 32.1 ml. T, 32.1 ml. S.

a) Duplicate values: 129 m., 1.93; 153, 1.94; 213, 2.00; 474, 3.46; 759, 3.19 µg. at./l.

Table 3.--Continued

STATION 70

HUGH M. SMITH; September 7, 1959; 1555 G.c.t. (zone +6, 0955); 15°00'N., 97°00'W.; sounding, 1995 fm.; wind, 290°, force 2; temp., 88.7°F. dry, 80.3°F. wet; weather, partly cloudy; sea, slight; wire angle, 06°; BT slide No. 70A, 70B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg at./l.	NO_3-N µg at./l.	NO_2-N µg at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	29.69	33.66	4.15	0.18				692	0	(29.69)	(33.66)	(4.15)	(20.86)	(692)	(0.00)
11	29.56	33.68	4.08	0.14				687	10	29.57	33.68	4.09	20.91	688	0.07
31	29.40	33.66	4.16	0.18				684	20	29.48	33.67	4.10	20.93	686	0.14
55	21.73	34.45	1.38	1.79				402	30	29.41	33.66	4.15	20.95	684	0.21
70	17.78	34.69	0.30	2.52				286	50	26.30	34.03	2.90	22.24	560	0.33
85	14.88	34.78	0.20	2.64				216	75	16.50	34.73	0.24	25.44	255	0.43
99	14.18	34.82	0.16	2.64a)				198	100	14.15	34.82	0.16	26.04	198	0.49
129	13.39	34.81	0.16	2.77				184	150	12.88	34.87	0.16	26.34	170	0.58
153	12.80	34.87	0.16	2.67a)				168	200	12.20	34.84	0.17	26.45	159	0.67
178	12.46	34.85	0.20	2.85a)				164	250	11.51	34.80	0.16	26.55	149	0.75
213	12.04	34.84	0.16	2.83				156	300	10.80	34.73	0.17	26.62	143	0.82
276	11.14	34.77	0.16	2.94				146	400	9.35	34.61	0.19	26.78	128	0.97
374	9.75	34.61	0.18	3.16a)				134	500	7.66	34.61	0.21	27.04	103	1.09
472	8.05	34.61	0.21	3.42a)				108	600	6.69	34.60	0.21	27.17	91	1.20
605	6.66	34.60	0.21	3.34a)				90	700	6.05	34.57	0.20	27.23	85	1.30
759	5.74	34.56	0.18	3.66a)				82	800	5.55	34.56	0.18	27.28	80	1.39
907	5.11	34.56	0.18	3.50a)				75	1000	4.72	34.57	0.25	27.39	70	1.56
1116	4.22	34.59	0.39	3.60a)				63							

Incident solar radiation: daily T 532 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1300-1345 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
0°	5	767	5		
-	10	657	10	5-10	0.0308
-	20	454	20	10-20	0.0370
-	25	377	25	20-25	0.0372
-	30	310	30	25-30	0.0392
-	40	196	40	30-40	0.0458
-	50	67.1	50	40-50	0.107
-	60	22.2	60	50-60	0.111
-	70	10.7	70	60-70	0.0730

a) Duplicate values: 99 m., 2.76; 153, 2.72; 178, 2.67; 374, 3.08; 472, 3.58; 605, 3.50; 759, 3.79; 907, 3.60; 1116, 3.50 µg. at./l.

Table 3.--Continued

STATION 70 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg C/m.^{3}/day Light	Deck Incubator Dark
0	0.091	0.726	0.426	5.77	2.66
		0.629	0.656		
		0.414	0.566		
10	0.051	-	-	-	-
25	0.048	-	-	-	-
50	0.31	-	-	-	-
75	0.11	-	-	-	-
100	0.062	-	-	-	-
125	0.073	-	-	-	-
150	0.073	-	-	-	-

Water column: 14 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 157 m., 1345 hr. (32'55"), 18.9 ml. T, 18.9 ml. S.
C N (C-B), H at 84 m., 1102 hr. (16'), 2.88 ml. T, 2.88 ml. S; H at 30 m., 1129 hr. (16'), 17.26 ml. T, 17.26 ml. S.

STATION 71

HUGH M. SMITH; September 8, 1959; 0140 G.c.t. (zone +6, 1940, IX-7); 14°19'N., 97°02'W.; sounding, 1950 fm.; wind, 090°, force 2; temp., 85.0°F. dry, 78.9°F. wet; weather, cloudy; sea, moderate; wire angle, 11°; BT slide No. 71A, 71B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	29.86	33.64	4.13	0.17				700	0	(29.86)	(33.64)	(4.13)	(20.78)	(700)	(0.00)
11	29.72	33.66	4.11	0.44a)				694	10	29.73	33.66	4.11	20.84	694	0.07
30	29.31	33.66	4.05	0.18				681	20	29.50	33.66	4.08	20.92	687	0.14
60	19.33	34.59	0.95	-				330	30	29.31	33.66	4.05	20.98	681	0.21
79	16.02	34.76	0.18	2.33a)				242	50	25.00	34.18	1.47	22.74	512	0.33
93	14.82	34.81	0.18	2.63a)				213	75	16.85	34.72	0.27	25.35	264	0.42
108	13.84	34.82	0.18	2.64a)				192	100	14.47	34.82	0.18	25.96	205	0.48
137	13.14	34.87	0.20	2.66				174	150	12.84	34.86	0.19	26.34	170	0.58
162	12.60	34.85	0.16	2.72				166	200	12.05	34.83	0.11	26.47	157	0.66
191	12.16	34.83	0.11	2.93a)				159	250	11.42	34.81	0.12	26.57	148	0.74
225	11.74	34.83	0.11	2.66				151	300	10.71	34.75	0.13	26.65	140	0.82
293	10.82	34.76	0.13	2.43a)				141	400	9.07	34.63	0.11	26.84	122	0.95
400	9.07	34.63	0.11	3.39				122	500	7.86	34.58	0.11	26.99	108	1.08
507	7.79	34.99r	0.11	3.46a)				-	600	6.97	34.56	0.10	27.10	97	1.19
644	6.63	34.56	0.10	3.46				93	700	6.25	34.55	0.11	27.19	88	1.29
800	5.65	34.54	0.13	3.70				82	800	5.65	34.54	0.13	27.26	82	1.39
966	4.76	34.56	0.26	3.70				71	1000	4.60	34.56	0.32	27.40	69	1.56
1175	3.96	34.56	0.46	3.72a)				63	1200	(3.88)	(34.56)		(27.47)	(62)	(1.71)

a) Duplicate values: 11 m., 0.18; 79, 2.58; 93, 2.75; 108, 2.72; 191, 2.45; 293, 2.22; 507, 3.36; 1175, 3.59 µg. at./l.

able 3.--Continued

STATION 71 (con.)

cident solar radiation: daily T 532 g.-cal./cm.^{2} .

Biological Data

ooplankton: N-C N, o to 246 m., 2017 hr. (31'), 28.1 ml. T, 25.3 ml. S.

STATION 72

UGH M. SMITH; September 8, 1959; 0811 G.c.t. (zone +6, 0211); 13°39.5'N., 97°00'W.; sounding, 2000 fm.; wind, 090°, force ; temp., 84.0°F. dry, 79.0°F. wet; weather, partly cloudy; sea, slight; wire angle, 21°; BT slide No. 72A, 72B.

OBSERVED									INTERPOLATED				COMPUTED		
epth	T.	S.	O_2	PO_4-P	NO_3-N	NO_2-N	SiO_3	$\delta_{-5}T_3$	Depth	T.	S.	O_2	σ_t	$\delta_{-5}T_3$	ΔD
m.	°C.	‰	ml/l	µg.at./l.	µg.at./l.	µg.at./l.	µg.at./l.	10cm/g.	m.	°C.	‰	ml/l.	g./l.	10cm/g.	dyn.m.
1	29.54	33.73	4.13	0.19				683	0	(29.54)	(33.73)	(4.13)	(20.96)	(683)	(0.00)
10	29.56	33.73	4.10	0.12a)				684	10	29.56	33.73	4.10	20.95	684	0.07
28	29.25	33.71	4.10	0.24				675	20	29.38	33.72	4.10	21.01	679	0.14
55	19.58	34.61	1.38	2.02a)				335	30	29.23	33.71	4.10	21.05	674	0.20
72	15.49	34.81	0.46	2.48a)				226	50	23.00	34.39	2.12	23.49	440	0.32
86	14.42	34.81	0.49	2.44				204	75	15.37	34.81	0.45	25.76	224	0.40
98	13.92	34.81	0.36	2.54				194	100	13.88	34.81	0.35	26.08	194	0.45
124	13.38	34.85	0.30	2.52a)				181	150	12.99	34.84	0.27	26.29	174	0.54
146	13.04	34.84	0.26	2.55a)				175	200	12.06	34.80	0.16	26.44	160	0.63
172	12.68	34.83	0.33	2.55a)				169	250	11.61	34.79	0.13	26.52	152	0.71
202	12.02	34.80	0.15	2.89a)				159	300	10.96	34.75	0.16	26.61	144	0.79
262	11.50	34.79	0.13	2.95a)				150	400	9.24	34.64	0.16	26.81	124	0.93
358	10.01	34.69	0.18	3.26				133	500	7.90	34.57	0.11	26.97	110	1.06
453	8.40	34.59	0.11	3.48a)				115	600	7.02	34.56	0.14	27.09	98	1.17
575	7.24	34.56	0.13	3.51a)				101	700	6.09	34.57	0.18	27.22	86	1.27
718	5.96	34.57	0.18	3.57				84	800	5.46	34.56	0.17	27.30	78	1.36
873	5.10	34.56	0.16	3.68				75	1000	4.60	34.55	0.26	27.39	70	1.53
074	4.30	34.55	0.34	3.74				67							

Biological Data

Zooplankton: N-C N, o to 241 m., 0250 hr. (32'55"), 52.4 ml. T, 50.7 ml. S; H at 0 m., 0330 hr. (15'5"), 62.1 ml. T, 62.1 ml. S.

) Duplicate values: 10 m., 0.20; 55, 1.92; 72, 2.38; 124, 2.18; 146, 2.73; 172, 2.63; 202, 2.81; 262, 2.73; 453, 3.40; 575, 3.59 µg. at./l.

Table 3.--Continued

STATION 73

HUGH M. SMITH; September 8, 1959; 1917, 1948, 2030 G.c.t. (zone +6, 1317, 1348, 1430); 13°42.5'N., 95°56'W.; sounding, 2000 fm.; wind, 090°, force 1; temp., 84.0°F. dry, 79.0°F. wet; weather, partly cloudy; sea, rough; wire angle, 19°, 20°, 16°; BT slide No. 73A, 73B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth	T.	S.	O_2	PO_4-P	NO_3-N	NO_2-N	SiO_3	$\delta_{-5}T_3$	Depth	T.	S.	O_2	σ_t	$\delta_{-5}T_3$	ΔD
m.	°C.	‰	ml/l	µg at./l	µg at./l	µg at/l	µg at/l.	10cm/g.	m.	°C.	‰	ml/l.	g./l.	10cm/g.	dyn.m.
2	29.50	33.60	4.10	0.14				691	0	(29.50)	(33.60)	(4.10)	(20.88)	(691)	(0.00)
10	29.50	33.61	4.13	0.24				690	10	29.50	33.61	4.13	20.89	690	0.07
30	29.10	33.68	3.97	0.31				672	20	29.33	33.64	4.07	20.96	682	0.14
39	24.59	34.35	2.75	1.14				488	30	29.10	33.68	3.97	21.07	672	0.20
48	19.70	34.60	0.82	2.26				339	50	18.40	34.66	0.46	24.93	303	0.30
56	16.74	34.74	0.20	2.69a)				259	75	14.78	34.83	0.29	25.91	210	0.37
81	14.43	34.83	0.31	2.26a)				203	100	13.63	34.82	0.31	26.15	188	0.42
103	13.56	34.82	0.31	2.52a)				186	150	12.91	34.83	0.41	26.30	173	0.51
149	12.92	34.83	0.41	2.52				173	200	12.19	34.83	0.24	26.44	160	0.60
182	12.46	34.83	0.31	2.35a)				165	250	11.63	34.83	0.15	26.55	150	0.68
									300	11.12	34.81	0.14	26.63	142	0.75
214	12.01	34.83	0.20	2.78				157	400	9.70	34.69	0.16	26.78	127	0.89
279	11.36	34.83	0.13	2.95				145	500	7.94	34.60	0.14	26.99	108	1.02
382	10.04	34.72	0.16	3.14a)				131	600	6.95	34.56	0.12	27.10	97	1.13
483	8.17	34.61	0.15	3.44				110	700	6.19	34.57	0.10	27.21	86	1.23
614	6.82	34.56	0.11	3.60				96	800	5.56	34.58	0.13	27.30	78	1.32
766	5.78	34.58	0.10	3.74				81	1000	4.49	34.57	0.31	27.41	68	1.49
928	4.82	34.57	0.23	3.81				71							
1148	3.96	34.58	0.44	2.25a)				61							

Submarine irradiance and attenuation coefficients at 1250-1318 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
11°	5	269	5		
8°	10	225	10	5-10	0.0358
20°	20	116	19	10-19	0.0736
30°	25	92.0	22	19-22	0.0773
24°	30	66.3	27	22-27	0.0656
35°	40	27.2	33	27-33	0.148
40°	50	19.8	38	33-38	0.0634
	60	6.79	46	38-46	0.134

a) Duplicate values: 56 m., 2.61; 81, 2.57; 103, 2.64; 182, 2.67; 382, 2.99; 1148, 3.06 µg. at./l.

Table 3.--Continued

STATION 73 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark
0	0.086	0.993	0.771	8.29	4.38
		1.17	0.758	8.74	
		0.830	0.854		
10	0.079	-	-	-	-
25	0.082	-	-	-	-
50	0.24	-	-	-	-
75	0.064	-	-	-	-
100	0.048	-	-	-	-
125	0.050	-	-	-	-
150	0.047	-	-	-	-

Water column: 11 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 131 m., 1600 hr. (34'10"), 37.1 ml. T, 36.2 ml. S.

STATION 74

HUGH M. SMITH; September 9, 1959; 0445 G.c.t. (zone +6, 2245, IX-8); 14°20'N., 95°59'W.; sounding, 1850 fm.; wind, 030°, force 2; temp., 85.0°F. dry, 78.3°F. wet; weather, partly cloudy; sea, moderate; wire angle, 17°; BT slide No. 74A, 74B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	29.62	33.63	4.18	0.21				693	0	(29.62)	(33.63)	(4.18)	(20.85)	(693)	(0.00)
10	29.26	33.62	4.16	0.22				682	10	29.26	33.62	4.16	20.97	682	0.07
29	28.92	33.62	4.28	0.27				670	20	29.14	33.62	4.20	21.01	678	0.14
38	25.66	34.29	3.28	0.91				523	30	28.85	33.63	4.27	21.10	669	0.20
43	20.56	34.61	1.62	1.94a)				360	50	17.90	34.72	1.16	25.10	287	0.30
52	17.32	34.74	1.03	2.15a)				272	75	15.08	34.78	0.32	25.81	220	0.36
71	15.10	34.78	0.33	2.80a)				221	100	14.13	34.83	0.27	26.05	197	0.42
103	14.04	34.83	0.26	2.88				196	150	13.01	34.83	0.15	26.28	175	0.51
144	13.14	34.83	0.16	2.38a)				178	200	12.10	34.81	0.13	26.44	160	0.60
180	12.40	34.81	0.11	2.99a)				165	250	11.42	34.77	0.16	26.54	150	0.68
212	11.95	34.81	0.15	3.12a)				157	300	10.65	34.70	0.15	26.63	142	0.75
274	11.07	34.74	0.16	3.24				147	400	9.00	34.64	0.11	26.85	121	0.89
375	9.41	34.65	0.10	3.53				126	500	7.58	34.61	0.16	27.05	102	1.01
477	7.82	34.62	0.16	3.74				105	600	6.69	34.58	0.13	27.16	92	1.12
607	6.65	34.58	0.13	3.74				92	700	5.99	34.56	0.15	27.24	84	1.21
758	5.60	34.56	0.16	3.90				80	800	5.35	34.56	0.18	27.31	77	1.30
920	4.76	34.57	0.21	3.72				70	1000	4.42	34.57	0.31	27.42	67	1.47
1125	3.98	34.57	0.51	3.92a)				62							

a) Duplicate values: 43 m., 1.87; 52, 2.28; 71, 2.90; 144, 2.90; 180, 2.88; 212, 2.99; 1125, 3.74 µg. at./l.

Table 3.--Continued

STATION 74 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.052
50	0.32
100	0.040

Water column: 24 mg./m.^{2}

Zooplankton: N-C N, o to 269 m., 2218 hr. (30'24"), 38.4 ml. T, 35.3 ml. S; H at 0 m., 2253 hr. (16'32"), 144.3 ml. T, 144.3 ml. S.

Micronekton: o to 85 m., 2318 hr. (44'), 106 ml. T w/o jellies.

STATION 75

HUGH M. SMITH; September 9, 1959; 1206 G.c.t. (zone +6, 0606); 15°01.5'N., 96°03'W.; sounding, 2100 fm.; wind, 320°, force 2; temp., 84.0°F. dry, 79.4°F. wet; weather, partly cloudy; sea, moderate; wire angle, 10°; BT slide No. 75A, 75B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
0	29.00	33.66	4.29	0.21				671	0	29.00	33.66	4.29	21.07	671	0.00
10	28.98	33.65	4.33	0.21a)				671	10	28.98	33.65	4.33	21.07	671	0.07
24	28.62	33.61	4.33	0.21				662	20	28.80	33.62	4.33	21.12	667	0.13
34	26.77	33.99	4.06	0.60				578	30	28.40	33.63	4.31	21.27	654	0.20
44	20.84	34.61	2.03	1.79				368	50	18.55	34.72	1.22	24.94	302	0.30
53	17.90	34.74	1.03	2.17a)				285	75	15.08	34.80	0.33	25.82	219	0.36
72	15.32	34.79	0.36	2.67a)				224	100	13.81	34.84	0.26	26.12	190	0.41
105	13.66	34.84	0.26	2.92				187	150	12.70	34.85	0.16	26.36	167	0.50
148	12.72	34.85	0.16	3.07				168	200	11.99	34.83	0.14	26.48	156	0.59
187	12.14	34.85	0.16	3.06				157	250	11.44	34.78	0.13	26.54	150	0.67
221	11.76	34.79	0.13	3.06a)				155	300	10.78	34.75	0.13	26.64	141	0.74
288	10.97	34.76	0.13	3.36				143	400	9.09	34.62	0.13	26.83	123	0.88
394	9.20	34.63	0.13	3.76a)				124	500	7.52	34.60	0.13	27.05	102	1.00
500	7.52	34.60	0.13	3.71				102	600	6.60	34.58	0.13	27.17	91	1.11
636	6.34	34.58	0.13	4.02a)				88	700	5.96	34.57	0.14	27.24	84	1.20
791	5.46	34.56	0.16	4.02				79	800	(5.41)	(34.56)	(0.16)	(27.30)	(78)	(1.30)

Incident solar radiation: daily T 605 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 268 m., 0704 hr. (34'56"), 22.3 ml. T, 22.3 ml. S.

a) Duplicate values: 10 m., 0.31; 53, 2.37; 72, 2.55; 221, 3.22; 394, 3.66; 636, 3.82 µg. at./l.

Table 3.--Continued

STATION 76

HUGH M. SMITH; September 9, 1959; 1910 G.c.t. (zone +6, 1310); 15°35'N., 96°02.5'W.; sounding, 600 fm.; wind, 040°, force 1; temp., 88.2°F. dry, 80.0°F. wet; weather, partly cloudy; sea, slight; wire angle, 00°; BT slide No. 76A, 76B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	30.23	33.19	4.20	0.06a)				743	0	(30.23)	(33.19)	(4.20)	(20.34)	(743)	(0.00)
11	29.54	33.44	4.10	0.13				704	10	29.56	33.44	4.10	20.74	704	0.07
31	28.35	33.81	3.70	0.37				640	20	29.46	33.47	4.07	20.79	699	0.14
41	24.05	34.34	2.84	1.17				473	30	28.60	33.75	3.77	21.28	652	0.21
51	21.25	34.56	1.88	1.75				382	50	21.50	34.55	1.93	24.03	389	0.31
65	19.68	34.63	1.51	1.94a)				336	75	18.20	34.70	1.05	25.01	296	0.40
80	17.25	34.74	0.72	2.47				270	100	15.00	34.81	0.23	25.84	217	0.47
110	14.02	34.83	0.16	2.66a)				195	150	12.99	34.85	0.16	26.29	174	0.56
154	12.82	34.85	0.16	2.92a)				171	200	12.26	34.83	0.12	26.43	161	0.65
178	12.50	34.85	0.13	2.99				164	250	11.61	34.80	0.13	26.52	152	0.73
213	12.12	34.82	0.11	3.00				159	300	10.87	34.76	0.15	26.63	142	0.81
277	11.20	34.78	0.15	3.28				146	400	9.40	34.68	0.14	26.83	123	0.95
375	9.78	34.72	0.13	3.37				128	500	7.96	34.62	0.14	27.01	106	1.07
474	8.31	34.91b)	0.15	3.80				-	600	6.70	34.57	0.10	27.15	93	1.18
607	6.60	34.57	0.10	3.78a)				92	700	5.84	34.55	0.13	27.24	84	1.27
760	5.50	34.54	0.15	4.07				80	800	5.30	34.54	0.16	27.30	78	1.36
909	4.84	34.56	0.21	4.07				72	1000	4.51	34.59	0.30	27.43	66	1.53
1019	4.44	34.60	0.31	4.07				65							

Incident solar radiation: daily T 605 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1255-1322 hr.:

Wire Angle	Wire Out m.	Corrected Output of Detector µa.	Photometer Depth m.	Depth Interval m.	Attenuation Coefficient k
0°	5	641	5		
-	10	444	10	5-10	0.0734
-	20	194	20	10-20	0.0828
-	25	119	25	20-25	0.0978
-	30	71.8	30	25-30	0.101
-	40	21.9	40	30-40	0.119
-	50	8.55	50	40-50	0.0940

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis: Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Lab. Incubator Dark	Deck Incubator mg. C/m.^{3}/day Light	Deck Incubator Dark
0	0.058	2.99 2.01 1.98	0.213 1.72	21.1 17.0	10.4
10	0.096	-	-	-	-
25	0.17	-	-	-	-
50	0.19	-	-	-	-
75	0.074	-	-	-	-
100	0.035	-	-	-	-
125	0.032	-	-	-	-
150	0.036	-	-	-	-

Water column: 12 mg./m.^{2}

a) Duplicate values: 1 m., 0.14; 65, 2.06; 110, 2.92; 154, 2.56; 607, 2.90 µg. at./l.
b) Possible evaporation; value does not fall on property curve.

Table 3.--Continued

STATION 76 (con.)

Phytoplankton haul taken.

Zooplankton: N-C N, o to 150 m., 1530 hr. (36'10"), 16.8 ml. T, 15.9 ml. S.
C N (C-B), H at 122 m., 1353 hr. (20'), 1.72 ml. T, 1.72 ml. S; H at 48 m., 1428 hr. (20'), 13.41 ml. T, 13.41 ml. S; H at 19 m., 1504 hr. (20'), 21.82 ml. T, 21.82 ml. S.

STATION 77

HUGH M. SMITH; September 10, 1959; 1655 G.c.t. (zone +6, 1055); 15°41.5'N., 95°54'W.; sounding, 150 fm.; wind, 340°, force 5; temp., 84.6°F. dry, 77.9°F. wet; weather, cloudy; sea, very rough; wire angle, 50°; BT slide No. 77A.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
2	29.10	33.53	4.16	0.24				684	0	(29.10)	(33.53)	(4.16)	(20.95)	(684)	(0.00)
9	29.11	33.52	4.18	0.23				684	10	29.11	33.53	4.17	20.95	684	0.07
22	29.10	33.53	3.92	0.27				684	20	29.10	33.53	3.94	20.95	684	0.14
29	28.86	33.57	4.21	0.29				673	30	28.80	33.58	4.21	21.09	670	0.20
35	27.52	33.83	3.46	0.62				612	50	18.65	34.66	1.20	24.87	309	0.30
44	20.76	34.51	1.75	1.97a)				372	75	15.20	34.83	0.34	25.82	219	0.37
55	16.98	34.76	0.66	2.63a)				263	100	13.92	34.86	0.27	26.12	190	0.42
67	15.56	34.82	0.39	2.91				227	150	12.90	34.81	0.14	26.29	174	0.51
89	14.35	34.85	0.30	2.84				200	200	(12.29)	(34.83)		(26.42)	(162)	(0.60)
119	13.36	34.86	0.20	3.16a)				180							
152	12.86	34.81	0.13	3.19				174							
188	12.42	34.82	0.13	3.16				165							

Incident solar radiation: daily T 526 g.-cal./cm.^{2} .

Submarine irradiance and attenuation coefficients at 1215-1240 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	µa.	m.	m.	k
22°	10	272	9		
31°	20	189	17	9-17	0.0455
27°	25	133	22	17-22	0.0704

a) Duplicate values: 44 m., 1.85; 55, 2.48; 119, 3.04 µg. at./l.

Table 3.--Continued

STATION 77 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Dark	Deck Incubator mg. C/m.^{3}/day Light	Dark
0	0.093	1.13	0.408	6.89	5.45
		1.00	0.584		
		1.05	0.644		
10	0.13	-	-	-	-
25	0.13	-	-	-	-
50	0.20	-	-	-	-
75	0.32	-	-	-	-
100	0.103	-	-	-	-
125	0.062	-	-	-	-
150	0.066	-	-	-	-

Water column: 19 mg./m.^{2}

Phytoplankton haul taken.

STATION 78

HUGH M. SMITH; September 11, 1959; 0137 G.c.t. (zone +6, 1937, IX-10); 14°55'N., 95°07'W.; sounding, 1350 fm.; wind, 360°, force 5; temp., 84.2°F. dry, 77.2°F. wet; weather, partly cloudy; sea, rough; wire angle, 31°; BT slide No. 78A, 78B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
2	28.90	33.83	4.20	0.38		0.02		655	0	(28.90)	(33.83)	(4.20)	(21.25)	(655)	(0.00)
10	28.91	33.82	4.16	0.44		-		656	10	28.91	33.82	4.16	21.24	656	0.06
31	21.95	34.49	2.47	1.32		0.63		405	20	28.90	33.82	4.16	21.24	656	0.13
48	17.28	34.67	0.44	2.34		-		276	30	22.40	34.47	2.61	23.72	418	0.18
64	15.34	34.81	0.16	2.31a)		0.03		223	50	17.07	34.70	0.40	25.29	269	0.25
77	14.48	34.78	0.20	2.51a)		-		207	75	14.55	34.78	0.20	25.92	209	0.32
100	13.66	34.83	0.20	2.68		0.0		188	100	13.66	34.83	0.20	26.14	188	0.36
128	13.00	34.83	0.16	2.69		-		175	150	12.63	34.83	0.12	26.35	168	0.46
146	12.69	34.83	0.11	2.68		0.0		168	200	12.12	34.83	0.10	26.45	158	0.54
174	12.42	34.79	0.21	2.85a)		-		167	250	11.50	34.80	0.10	26.55	150	0.62
202	12.10	34.83	0.10	3.26		0.0		158	300	10.92	34.77	0.10	26.64	141	0.70
255	11.44	34.80	0.10	3.32		-		149	400	9.60	34.69	0.10	26.80	126	0.84
348	10.31	34.74	0.10	2.89a)		1.39		134	500	8.19	34.62	0.10	26.97	110	0.96
449	8.89	34.64	0.11	3.95		-		118	600	7.13	34.59	0.10	27.10	98	1.08
560	7.50	34.60	0.10	4.14		0.66		102	700	6.35	34.57	0.10	27.19	89	1.18
688	6.43	34.57	0.10	4.12		-		90	800	5.67	34.56	0.11	27.27	81	1.27
825	5.50	34.56	0.13	4.29a)		0.0		79	1000	4.45	34.56	0.30	27.41	68	1.44
1045	4.24	34.56	0.36	4.46a)		-		66							

Incident solar radiation: daily T 526 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 267 m., 2020 hr. (39'28"), 14.9 ml. T, 13.7 ml. S.

a) Duplicate values: 64 m., 2.56; 77, 2.61; 174, 2.65; 348, 3.97; 825, 4.12; 1045, 4.22 µg. at./l.

Table 3.--Continued

STATION 79

HUGH M. SMITH; September 10-11, 1959; zone +6, 2230-0038; 14°40'N., 95°03'W.; sounding, 2900 fm ; wind, 360°, force 2; temp., 84.2°F. dry, 77.2°F. wet; weather, 02; clouds, 1, 4, amt., 2; sea, 4; swell, 360°, 6 ft., 6 sec.; BT slide No. 79A, 79B.

Incident solar radiation: daily T 526 g.-cal./cm.^{2} .

Biological Data

Zooplankton: N-C N, o to 283 m., 2248 hr. (33'06"), 57.3 ml. T, 50.4 ml. S.

Micronekton: o to 81 m., 2339 hr. (46'), 150 ml. T w/o jellies.

STATION 80

HUGH M. SMITH; September 11, 1959; 0936 G.c.t. (zone +6, 0336); 14°23.5'N., 94°57.5'W.; sounding, 2350 fm.; wind, 040°, force 5; temp., 84.0°F. dry, 79.5°F. wet; weather, rain; sea, very rough; wire angle, 26°; BT slide No. 80A, 80B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P ug.at./l.	NO_3-N ug.at./l.	NO_2-N ug at./l.	SiO_3 ug at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
2	29.02	33.72a)	4.25	0.39b)				-	0	(29.02)	(33.56)	(4.25)	(21.00)	(679)	(0.00)
10	29.08	33.56	4.23	0.28				678	10	29.08	33.56	4.23	20.98	681	0.07
20	27.02	34.09	4.41	0.57				579	20	27.02	34.09	4.41	22.04	579	0.13
29	22.50	34.49	2.02	1.97				419	30	21.65	34.53	1.64	23.98	394	0.18
46	16.10	34.76	0.25	3.06b)				243	50	15.70	34.79	0.25	25.67	233	0.24
70	14.56	34.85	0.26	3.26				204	75	14.32	34.83	0.31	26.02	200	0.30
99	13.56	34.80	0.43	3.11b)				188	100	13.55	34.80	0.43	26.13	188	0.35
126	13.18	-	-	-				-	150	12.84	34.83	0.48	26.31	172	0.44
148	12.88	34.83	0.49	3.00				173	200	12.30	34.83	0.29	26.42	162	0.52
174	12.50	34.83	0.33	3.34b)				165	250	11.60	34.79	0.26	26.52	152	0.60
206	12.25	34.83	0.28	3.34				161	300	10.98	34.75	0.20	26.61	144	0.68
259	11.46	34.78	0.25	3.36				150	400	9.74	34.69	0.18	26.78	128	0.82
357	10.36	34.72	0.18	3.71d)				136	500	8.12	34.61	0.14	26.97	110	0.95
455	8.87	34.64	0.18	4.15				118	600	6.84	34.58	0.11	27.13	94	1.06
581	7.01	34.58	0.11	4.39b)				97	700	6.10	34.58	0.12	27.23	85	1.16
726	5.93	34.58	0.13	4.23				83	800	5.49	34.58	0.14	27.31	77	1.25
883	5.00	34.58	0.18	4.67				72	1000	4.48	34.58	0.31	27.43	66	1.42
1091	4.11	34.58	0.43	4.54b)				63							

Biological Data

Zooplankton: N-C N, H at 0 m., 0430 hr. (15'50"), 62.4 ml. T, 62.4 ml. S.

a) Possible evaporation; value does not fall on property curve.
b) Duplicate values: 2 m., 0.47; 46, 3.16; 99, 2.61; 174, 3.15; 357, 3.03; 581, 4.23; 1091, 4.65 µg. at./l.

Table 3.--Continued

STATION 81

HUGH M. SMITH; September 11, 1959; 1630 G.c.t. (zone +6, 1030); 13°39.5'N., 95°00'W.; sounding, 2100 fm.; wind, 360°, force 3; temp., 84.6°F. dry, 78.2°F. wet; weather, cloudy; sea, rough; wire angle, 10°; BT slide No. 81A, 81B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth	T.	S.	O_2	PO_4-P	NO_3-N	NO_2-N	SiO_3	$\delta_{-5}T_3$	Depth	T.	S.	O_2	σ_t	$\delta_{-5}T_3$	ΔD
m.	°C.	‰	ml/l.	μg.at./l.	μg.at./l.	μg.at./l.	μg.at./l.	10cm/g.	m.	°C.	‰	ml/l.	g./l.	10cm/g.	dyn.m.
1	29.09	33.58	4.28	0.38				680	0	(29.09)	(33.58)	(4.28)	(20.99)	(680)	(0.00)
11	29.02	33.57	4.29	0.37				679	10	29.04	33.57	4.29	21.00	679	0.07
30	21.20	34.56	1.93	1.86				380	20	26.00	34.05	2.99	22.33	551	0.13
40	18.44	34.67	0.82	3.71a)				303	30	21.20	34.56	1.93	24.12	380	0.18
50	16.46	34.79	0.52	3.04a)				249	50	16.46	34.79	0.82	25.50	249	0.24
79	14.73	34.81	0.46	3.17				211	75	15.14	34.80	0.47	25.81	220	0.30
108	13.70	34.87	0.38	3.10				186	100	14.00	34.86	0.40	26.10	192	0.35
137	13.04	34.85	0.30	3.13				174	150	12.82	34.83	0.23	26.31	172	0.44
161	12.62	34.81	0.21	3.32a)				170	200	12.08	34.81	0.27	26.45	159	0.53
190	12.20	34.81	0.30	3.01a)				161	250	11.47	34.82	0.16	26.57	148	0.61
224	11.79	34.83	0.18	3.92a)				153	300	10.82	34.77	0.15	26.65	140	0.68
292	10.93	34.78	0.16	3.37a)				141	400	9.21	34.66	0.10	26.84	122	0.82
399	9.22	34.66	0.10	3.96				122	500	7.65	34.61	0.13	27.04	103	0.94
507	7.56	34.61	0.13	4.43a)				102	600	6.62	34.58	0.11	27.17	91	1.05
643	6.28	34.58	0.10	4.45				87	700	5.90	34.58	0.10	27.26	82	1.14
798	5.36	34.58	0.13	4.45				76	800	5.35	34.58	0.13	27.33	76	1.23
966	4.67	34.56	0.25	4.58a)				70	1000	4.54	34.56	0.29	27.40	69	1.40
1174	4.08	34.56	0.48	4.43a)				64	1200	(4.02)	(34.56)		(27.46)	(63)	(1.55)

Submarine irradiance and attenuation coefficients at 1340 hr.:

Wire Angle	Wire Out	Corrected Output of Detector	Photometer Depth	Depth Interval	Attenuation Coefficient
	m.	μa.	m.	m.	k
0°	5	656	5		
7°	10	532	10	5-10	0.0418
15°	20	246	19	10-19	0.0858
21°	25	141	23	19-23	0.139
24°	30	90.1	27	23-27	0.112
30°	40	45.2	35	27-35	0.0862
30°	50	21.2	43	35-43	0.0946

a) Duplicate values: 40 m., 2.87; 50, 3.70; 161, 3.42; 190, 3.13; 224, 3.08; 292, 3.65; 507, 4.27; 966, 4.38; 1174, 4.12 μg. at./l.

Table 3.--Continued

STATION 81 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}	Photosynthesis Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles Light	Dark	Deck Incubator mg. C/m.^{3}/day Light	Dark
0	0.052	0.435	0.400	4.55	2.06
		0.428	0.424	4.02	
		0.405	0.300		
10	0.047	-	-	-	-
25	0.22	-	-	-	-
50	0.12	-	-	-	-
75	0.056	-	-	-	-
100	0.041	-	-	-	-
125	0.039	-	-	-	-
150	0.035	-	-	-	-

Water column: 10 mg./m.^{2}

Phytoplankton haul taken.

Zooplankton: N-C N, o to 200 m., 1425 hr. (31'10"), 45.4 ml. T, 45.4 ml. S.
C N (C-B), H at 77 m., 1207 hr. (16'), 3.21 ml. T, 3.21 ml. S; H at 38 m., 1230 hr. (16'), 2.78 ml. T, 2.78 ml. S; H at 10 m., 1316 hr. (16'), 48.88 ml. T, 48.88 ml. S.

STATION 82

HUGH M. SMITH; September 12, 1959; 0510, 0625 G.c.t. (zone +6, IX-11, 2340, IX-12, 0025); 13°40'N., 94°00'W.; sounding, 2250 fm.; wind, 320°, force 2; temp., 84.2°F. dry, 77.9°F. wet; weather, clear; sea, rough; wire angle, 03°, 06°; BT slide No. 82A, 82B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg at./l.	SiO_3 µg at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	29.34	34.00	4.39	0.51				658	0	(29.34)	(34.00)	(4.39)	(21.23)	(658)	(0.00)
11	28.28	34.02	4.82	0.56				622	10	28.30	34.02	4.81	21.60	622	0.06
26	25.90	34.14	3.90	0.98				541	20	27.70	34.04	4.66	21.81	602	0.12
50	15.34	34.72	0.59	2.92				230	30	20.80	34.43	2.19	24.13	379	0.17
80	14.02	34.94r	0.46	3.07				-	50	15.34	34.72	0.59	25.70	230	0.24
95	13.59	34.81	0.44	3.10				188	75	14.16	34.77	0.46	26.00	202	0.29
109	13.36	34.88	0.39	2.70a)				178	100	13.51	34.83	0.41	26.18	184	0.34
139	12.82	34.83	0.49	2.94a)				172	150	12.71	34.83	0.53	26.34	169	0.43
164	12.54	34.84	0.56	3.06a)				166	200	11.99	34.82	0.26	26.48	156	0.51
193	12.10	34.83b)	0.28	3.26				158	250	11.30	34.77	0.19	26.56	148	0.59
227	11.56	34.79	0.23	3.30				152	300	10.76	34.74	0.11	26.63	142	0.67
296	10.81	34.74	0.11	3.46				142	400	9.34	34.65	0.16	26.82	124	0.81
404	9.27	34.65	0.16	4.20				124	500	7.89	34.56	0.14	26.97	109	0.93
512	7.72	34.56	0.13	4.30				107	600	6.81	34.56	0.15	27.12	96	1.04
650	6.39	34.56	0.16	4.30				90	700	6.00	34.56	0.15	27.22	86	1.14
									800	5.34	34.55	0.11	27.30	78	1.24
808	5.30	34.55	0.11	4.45				78	1000	4.43	34.58	0.34	27.43	66	1.40
977	4.53	34.58	0.30	3.71a)				67	1200	(3.72)	(34.58)		(27.50)	(59)	(1.54)
1186	3.77	34.58	0.57	4.44				60							

a) Duplicate values: 109 m., 3.13; 139, 3.00; 164, 2.96; 977, 3.48 µg. at./l.
b) Possible evaporation; value falls on property curve.

Table 3.--Continued

STATION 82 (con.)

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.074
50	0.11
100	0.070

Water column: 10 mg./m.^{2}

Zooplankton: N-C N, o to 293 m., 0115 hr. (33'30"), 104.5 ml. T, 95.7 ml. S.

Micronekton: o to 91 m., 2212 hr. (49'), 146 ml. T w/o jellies.

STATION 83

HUGH M. SMITH; September 12, 1959; 1310 G.c.t. (zone +6, 0710); 14°21.5'N., 94°07'W.; sounding, 2500 fm.; wind, 340°, force 4; temp., 83.2°F. dry, 78.2°F. wet; weather, partly cloudy; sea, rough; wire angle, 10°; BT slide No. 83A, 83B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10 m/g.	ΔD dyn.m.
2	29.41	33.34	4.23	0.29a)				708	0	(29.41)	(33.34)	(4.23)	(20.70)	(708)	(0.00)
12	29.38	33.40	4.29	0.33				702	10	29.39	33.39	4.28	20.76	702	0.07
36	26.12	34.00	3.28	1.06a)				557	20	28.15	33.69	3.89	21.38	642	0.14
65	16.90	34.75	0.52	2.95				262	30	27.25	33.83	3.63	21.78	604	0.20
89	15.20	34.78	0.33	3.02				223	50	22.80	34.29	2.20	23.47	442	0.30
104	14.84	34.79	0.31	3.07				215	75	16.02	34.77	0.40	25.58	241	0.39
118	14.38	34.81	0.25	3.15				203	100	14.98	34.79	0.32	25.83	218	0.45
152	13.74	34.83	0.20	3.12a)				189	150	13.79	34.83	0.20	26.12	190	0.55
176	13.51	34.83	0.20	3.22a)				185	200	13.30	34.85	0.26	26.23	180	0.65
210	13.20	34.85	0.28	3.13a)				178	250	12.62	34.77	0.19	26.31	172	0.74
244	12.76	34.78	0.20	3.22a)				174	300	10.84	34.74	0.13	26.62	143	0.82
311	10.44	34.73	0.13	3.68				137	400	7.74	34.62	0.13	27.04	104	0.95
427	7.30	34.60	0.13	4.20				99	500	6.73	34.58	0.12	27.14	93	1.06
553	6.42	34.57	0.11	4.32a)				90	600	6.19	34.57	0.14	27.21	87	1.15
694	5.77	34.57	0.18	4.32				82	700	5.73	34.57	0.18	27.27	81	1.24
854	5.02	34.54	0.20	4.46				76	800	5.30	34.55	0.19	27.31	78	1.34
1020	4.37	34.56	0.36	4.42				67	1000	4.43	34.56	0.32	27.41	68	1.50
1272	3.56	34.58	0.69	4.42				57	1200	3.76	34.57	0.61	27.50	60	1.65

Biological Data

Zooplankton: N-C N, o to 267 m., 0756 hr. (29'02"), 41.6 ml. T, 40.2 ml. S.

a) Duplicate values: 2 m., 0.37; 36, 0.90; 152, 2.99; 176, 3.13; 210, 3.22; 244, 3.15; 553, 4.45 µg. at./l.

Table 3.--Continued

STATION 84

HUGH M. SMITH; September 14, 1959; 0540 G.c.t. (zone +6, 2340, IX-13); 16°28'N., 99°32.5'W.; sounding, 650 fm.; wind, 320°, force 1; temp., 84.8°F. dry, 77.0°F. wet; weather, partly cloudy; sea, slight; wire angle, 22°; BT slide No. 84A, 84B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg at. l	NO_3-N µg at. l	NO_2-N µg at. l	SiO_3 µg at. l	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	29.60	33.14	3.97	0.29				728	0	(29.60)	(33.14)	(3.97)	(20.49)	(728)	(0.00)
19	29.34	33.35	4.28	0.35				703	10	29.50	33.25	4.16	20.61	717	0.07
29	29.04	33.49	4.08	0.46				685	20	29.33	33.36	4.28	20.75	703	0.14
38	26.88	34.14	3.08	0.89				570	30	29.02	33.50	4.07	20.95	684	0.21
52	21.58	34.51	1.69	2.31				394	50	21.80	34.50	1.77	23.91	400	0.32
74	16.63	34.68	0.25	3.45a)				261	75	16.52	34.69	0.26	25.40	258	0.40
92	14.78	34.81	0.46	2.96a)				212	100	14.35	34.80	0.32	25.98	204	0.46
119	13.84	34.78	0.18	2.69a)				195	150	12.91	34.83	0.16	26.30	173	0.56
141	13.12	34.83	0.15	3.48				177	200	12.22	34.83	0.18	26.43	161	0.64
164	12.68	34.83	0.18	3.43				168	250	11.69	34.78	0.16	26.50	154	0.73
195	12.28	34.83	0.18	3.51a)				162	300	11.12	34.74	0.16	26.58	147	0.80
253	11.65	34.78	0.16	3.54				154	400	9.49	34.66	0.19	26.79	127	0.95
343	10.51	34.71	0.16	3.84				139	500	7.93	34.60	0.17	27.00	107	1.07
434	8.88	34.63	0.20	4.26a)				119	600	6.84	34.56	0.17	27.12	96	1.18
558	7.23	34.58	0.16	4.33				100	700	6.11	34.54	0.20	27.20	88	1.29
701	6.10	34.54	0.20	4.74				88	800	5.54	34.54	0.17	27.27	81	1.38
842	5.34	34.54	0.16	4.69a)				79	1000	4.59	34.55	0.29	27.39	70	1.55
1043	4.38	34.55	0.33	4.67				68							

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.035
50	0.39
100	0.056

Water column: 26 mg./m.^{2}

Zooplankton: N-C N, o to 290 m., 0220 hr. (35'30"), 40.6 ml. T, 23.7 ml. S; H at 0 m., 0300 hr. (15'15"), 26.9 ml. T, 26.9 ml. S.
C N (C-B), H at 165 m., 0033 hr. (16'), 1.67 ml. T, 1.67 ml. S; H at 78 m., 0105 hr. (14'), 12.73 ml. T, 12.73 ml. S; H at 20 m., 0132 hr. (16'), 39.57 ml. T, 16.29 ml. S.

Micronekton: o to 90 m., 2210 hr. (47'), 368 ml. T w/o jellies.

a) Duplicate values: 74 m., 3.33; 92, 3.36; 119, 2.79; 195, 3.37; 434, 4.49; 842, 4.95 µg. at./l.

Table 3.--Continued

STATION 85

HUGH M. SMITH; September 15-16, 1959; zone +6, 2300-0330; 17°09.5'N., 101°17'W.; sounding, 600 fm.; wind, 350°, force 1; temp., 83.1°F. dry, 78.3°F. wet; weather, 02; clouds, 8, amt., 6; sea, 3; swell, 180°, 3 ft., 6 sec.; BT slide No. 85A, 85B.

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.071
50	0.33
100	0.066

Water column: 23 mg./m.^{2}

Zooplankton: N-C N, o to 283 m., 0020 hr. (37'40"), 29.5 ml. T, 28.4 ml. S; H at 0 m., 0101 hr. (15'29"), 54.4 ml. T, 54.4 ml. S.
C N (C-B), H at 134 m., 0152 hr. (16'), 1.15 ml. T, 1.15 ml. S; H at 73 m., 0223 hr. (16'), 18.85 ml. T, 18.85 ml. S; H at 22 m., 0245 hr. (16'), 11.12 ml. T, 11.12 ml. S.

Micronekton: o to 84 m., 2310 hr. (51'), 249 ml. T w/o jellies.

STATION 86

HUGH M. SMITH; September 16-17, 1959; zone +6, 2300-0430; 18°40'N., 104°09'W.; sounding, 800 fm.; wind, 330°, force 1; temp., 84.1°F. dry, 78.9°F. wet; weather, 02; clouds, 8, amt., 4; sea, 3; swell, 330°, 3 ft., 6 sec.; BT slide No. 86A, 86B.

Incident solar radiation: daily T 613 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.064
50	0.34
100	0.058

Water column: 22 mg./m.^{2}

Zooplankton: N-C N, o to 286 m., 2103 hr. (36'37"), 14.5 ml. T, 10.9 ml. S.
C N (C-B), H at 144 m., 0212 hr. (16'), 0.65 ml. T, 0.65 ml. S; H at 72 m., 0315 hr. (16'), 26.47 ml. T, 26.47 ml. S; H at 23 m., 0342 hr. (16'), 23.67 ml. T, 23.67 ml. S.

Micronekton: o to 91 m., 0035 hr. (49'), 146 ml. T w/o jellies.

Table 3.--Continued

STATION 87

HUGH M. SMITH; September 18, 1959; 0442 G.c.t. (zone +7, 2142, IX-17); 20°09'N., 106°32'W.; sounding, 2050 fm.; wind, 340°, force 3; temp., 83.2°F. dry, 77.4°F. wet; weather, partly cloudy; sea, slight; wire angle, 08°; BT slide No. 87A, 87B.

OBSERVED									INTERPOLATED				COMPUTED		
Depth m.	T. °C.	S. ‰	O_2 ml/l.	PO_4-P µg.at./l.	NO_3-N µg.at./l.	NO_2-N µg.at./l.	SiO_3 µg.at./l.	$\delta_{-5}T_3$ 10cm/g.	Depth m.	T. °C.	S. ‰	O_2 ml/l.	σ_t g./l.	$\delta_{-5}T_3$ 10cm/g.	ΔD dyn.m.
1	28.45	33.99	4.13	0.26				630	0	(28.45)	(33.99)	(4.13)	(21.51)	(630)	(0.00)
11	28.46	33.93	4.16	0.32				635	10	28.46	33.95	4.15	21.47	634	0.06
30	27.83	34.04	4.20	0.58a)				607	20	27.94	34.02	4.20	21.70	612	0.12
59	25.30	34.42	4.10	0.58				503	30	27.83	34.04	4.20	21.76	607	0.19
79	21.38	34.45	3.29	1.28				393	50	26.80	34.24	4.17	22.23	561	0.30
93	18.49	34.52	1.61	2.42a)				315	75	22.35	34.44	3.61	23.71	420	0.43
108	16.64	34.78	0.82	2.99				254	100	18.15	34.55	1.42	24.91	305	0.52
137	14.11	34.71	0.36	3.49a)				205	150	13.59	34.78	0.21	26.12	190	0.64
161	13.24	34.81	0.15	3.67				181	200	12.35	34.79	0.14	26.38	166	0.73
191	12.51	34.79	0.16	3.49a)				169	250	11.60	34.78	0.13	26.51	153	0.81
225	11.98	34.79	0.11	3.72a)				159	300	10.85	34.71	0.16	26.59	145	0.89
293	10.97	34.72	0.16	3.90				146	400	9.26	34.52	0.20	26.72	133	1.04
401	9.24	34.52	0.20	3.77a)				133	500	7.76	34.50	0.13	26.94	112	1.17
508	7.64	34.50	0.13	4.28				111	600	6.59	34.50	0.22	27.10	97	1.28
645	6.21	34.51	0.26	4.54a)				92	700	5.86	34.53	0.26	27.22	86	1.38
803	5.31	34.55	0.26	4.44				78	800	5.32	34.55	0.26	27.30	78	1.47
971	4.45	34.52	0.33	4.57				71	1000	4.34	34.51	0.38	27.39	70	1.64
1178	3.80	34.49	0.62	4.30				66	1200	(3.75)	(34.49)		(27.43)	(66)	(1.79)

Incident solar radiation: daily T 612 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.042
50	0.15
100	0.16

Water column: 13 mg./m.^{2}

Zooplankton: N-C N, o to 256 m., 2312 hr. (33'02"), 47.9 ml. T, 42.0 ml. S; H at 0 m., 2349 hr. (15'20"), 94.7 ml. T, 94.7 ml. S.
C N (C-B), H at 146 m., 0030 hr. (16'), 3.21 ml. T, 3.21 ml. S; H at 71 m., 0102 hr. (16'), 55.50 ml. T, 22.20 ml. S; H at 27 m., 0129 hr. (16'), 18.75 ml. T, 18.75 ml. S.

Micronekton: o to 77 m., 2218 hr. (42'), 64 ml. T w/o jellies.

a) Duplicate values: 30 m., 0.35; 93, 2.32; 137, 3.27; 191, 3.33; 225, 3.49; 401, 4.08; 645, 4.28 µg. at./l.

Table 3.--Continued

STATION 88

HUGH M. SMITH; September 18-19, 1959; zone +7, 2100-0110; 22°00.5'N., 109°04.5'W.; sounding, 1650 fm.; wind, 360°, force 1; temp., 84.7°F. dry, 77.1°F. wet; weather, 02; clouds, 2, amt., 1; sea, 2; swell, 270°, 2 ft., 5 sec.; BT slide No. 88A, 88B.

Incident solar radiation: daily T 644 g.-cal./cm.^{2} .

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.052
50	0.22
100	0.085

Water column: 16 mg./m.^{2}

Zooplankton: N-C N, o to 293 m., 2105 hr. (35'20"), 38.1 ml. T, 31.3 ml. S; H at 0 m., 2146 hr. (14'32"), 22.5 ml. T, 22.5 ml. S.
C N (C-B), H at 172 m., 2331 hr. (16'), 3.20 ml. T, 3.20 ml. S; H at 77 m., 0004 hr. (16'), 23.24 ml. T, 23.24 ml. S; H at 17 m., 0026 hr. (16'), 7.68 ml. T, 7.68 ml. S.

Micronekton: o to 80 m., 2313 hr. (48'), 409 ml. T w/o jellies.

STATION 89

HUGH M. SMITH; September 19-20, 1959; zone +7, 2100-0115; 24°16.5'N., 111°59.5'W.; sounding, 110 fm.; wind, 330°, force 1; temp., 79.1°F. dry, 75.4°F. wet; weather, 02; clouds, amt., 0; sea, 4; swell, 320°, 4 ft., 5 sec.; BT slide No. 89A, 89B.

Biological Data

Phytoplankton:

Depth m.	Chlorophyll a mg./m.^{3}
0	0.17
50	0.201
100	0.28

Water column: 21 mg./m.^{2}

Zooplankton: N-C N, o to 120 m., 2138 hr. (30'3"), 26.1 ml. T, 24.8 ml. S; H at 0 m., 2110 hr. (14'52"), 64.3 ml. T, 64.3 ml. S.
C N (C-B), H at 149 m., 2323 hr. (16'), 84.70 ml. T, 6.98 ml. S; H at 80 m., 2353 hr. (16'), 6.46 ml. T, 6.46 ml. S; H at 17 m., 0020 hr. (18'), 24.10 ml. T, 24.10 ml. S.

Micronekton: o to 89 m., 2213 hr. (42'), 19 ml. T w/o jellies.

STATION 90

HUGH M. SMITH; September 20-21, 1959; zone +7, 2100-0003; 26°33.5'N., 113°54'W.; sounding, 100 fm.; wind, 320°, force 2; temp., 72.5°F. dry, 60.8°F. wet; weather, 02; clouds, amt., 0; sea, 4; swell, 300°, 4 ft., 5 sec.; BT slide No. 91A, 91B.

Biological Data

Zooplankton: C N (C-B), H at 44 m., 1246 hr. (16'), 17.82 ml. T, 17.82 ml. S; H at 17 m., 1312 hr. (16'), 6.50 ml. T, 6.50 ml. S.

STATION 91

HUGH M. SMITH; September 20-21; zone +7, 2100-0003; 26°33.5'N., 113°54'W.; sounding, 100 fm.; wind, 320°, force 2; temp., 72.5°F. dry, 60.8°F. wet; weather, 02; clouds, amt., 0; sea, 4; swell, 300°, 4 ft., 5 sec.; BT slide No. 91A, 91B.

Biological Data

Zooplankton: N-C N, H at 0 m., 2104 hr. (15'21"), 33.2 ml. T, 30.5 ml. S.
C N (C-B), H at 88 m., 2240 hr. (16'), 14.17 ml. T, 1.58 ml. S; H at 47 m., 2315 hr. (16'), 61.50 ml. T, 18.45 ml. S; H at 17 m., 2343 hr. (16'), 18.06 ml. T, 18.06 ml. S.

Table 4. Summary of bathythermograph observations.

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS

Cruise TO-58-2

Slide Number	Date (1958)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
0-1	Nov. 3	2012	25°15'	113°57'	23.9	C	43
0-2	4	0015	24°55'	113°19'	25.2	C	37
0-3	4	0315	24°33'	112°47'	25.1	M	51
0-4	4	0620	24°15'	112°17'	26.3	M	55
0-5	4	0915	23°57'	111°50'	25.8	M	35
0-7	4	1815	23°06.5'	110°22.5'	27.3	C	25
0-8	4	2115	22°42'	110°02'	27.8	?	27
0-9	5	0015	22°18.5'	109°42'	27.2	M	31
0-10	5	0315	21°55'	109°20'	27.3	P	36
0-11	5	0622	21°33'	108°57'	27.6	P	32
0-12	5	0915	21°12'	108°34'	27.3	P	39
0-13	5	1215	20°50'	108°10.5'	28.4	M	42
0-14	5	1515	20°28'	107°48'	28.5	P	58
0-15	5	1815	20°04.5'	107°28'	28.3	M	40
0-16	5	2118	19°40.5'	107°08.5'	28.4	M	42
0-17	6	0000	19°16.5'	106°50'	28.0	M	30
0-18	6	0300	18°52'	106°28'	28.0	P	32
0-19	6	0600	18°28'	106°05'	28.0	P	47
0-20	6	0915	18°05'	105°40'	27.9	P	32
0-21	6	1215	17°50'	105°09'	27.5	P	61
0-22	6	1517	17°34'	104°39'	28.1	M	40
0-23	6	1815	17°16'	104°10'	28.0	P	33
0-24	6	2135	17°00'	103°40.5'	29.1	C	42
0-25	7	0000	16°45.5'	103°13.5'	28.8	C	37
0-26	7	0315	16°31'	102°45'	28.9	M	37
0-27	7	0617	16°17'	102°15.5'	28.9	M	37
0-28	7	0915	16°04.5'	101°46.5'	29.0	C	30
0-29	7	1215	15°52'	101°16'	29.1	M	-
0-30	7	1517	15°42'	100°46.5'	28.8	M	27
0-31	9	1335	14°31'	95°00'	29.1	M	10
0-32	9	1440	14°43'	95°01'	29.1	M	10
0-33	9	1540	14°58.5'	95°01'	28.9	M	12
0-34	9	1640	15°05.5'	95°01.5'	29.0	M	11
0-35	9	1740	15°17'	95°01.5'	29.6	-	10
0-36	9	1810	15°23'	95°02'	29.8	M	10
0-37	9	1840	15°28'	95°02'	29.9	M	18
0-38	9	1910	15°33.5'	95°02'	29.9	M	14
0-39	9	1940	15°39'	95°02'	29.9	C	19
1-1	13	0649	15°01.5'	93°02.5'	30.1	M	16
1-2	13	0855	14°41'	93°00.5'	30.3	M	12
1-3	13	1045	14°24'	92°59'	30.3	M	19
1-4	13	1322	14°02'	92°59'	29.2	N	27
1-5	13	1515	13°43'	92°58.5'	29.4	P	18
1-6	13	1804	13°42.5'	93°29'	30.7 ?	M	17
1-7	13	2055	13°38.5'	94°02.5'	30.3	C	18
1-8	13	2255	13°58'	94°03.5'	29.9	M	19
1-9	14	0055	14°19'	94°05'	29.7	P	18
1-10	14	0108	14°41'	94°01'	29.5	C	18

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-58-2 (con.)

Slide Number	Date (1958)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
1-11	Nov. 14	0453	14°59'	94°01.5'	29.5	M	10
1-12	14	0651	15°19'	94°02'	29.4	M	10
1-13	14	0852	15°39'	94°03'	29.6	M	10
1-14	14	1310	15°50'	94°36.5'	28.9	P	17
1-15	14	1645	15°58'	95°00'	26.6	C	28+70
1-16	14	1855	15°40'	95°00'	27.3	C	19
1-17	14	2100	15°18.5'	95°00'	28.0	C	17
1-18	14	2257	14°56.5'	95°00.5'	28.7	M	24
1-19	15	0000	14°47'	95°05.5'	28.9	M	19
1-20	15	0115	14°39'	95°06'	29.1	M	11
1-21	15	0441	14°21'	95°00.5'	29.2	M	11
1-22	15	0641	14°01'	95°00'	28.2	N	0
1-23	15	0826	13°40'	95°00'	28.0	N	0
1-24	15	1130	13°39'	95°28'	27.6	M	12
1-25	15	1425	13°39'	95°59.5'	29.3	M	23
1-26	15	1631	13°58.5'	95°59'	29.7	M	17
1-27	15	1835	14°17'	95°58.5'	25.4 ?	M	25
1-28	15	2050	14°40'	96°00'	29.9	C	25
1-29	15	2300	15°00'	96°00'	28.8	C	35
1-30	16	0055	15°21'	96°01'	28.3	N	38
1-31	16	0235	15°38'	96°01.5'	29.3	N	0
1-32	16	0720	15°40.5'	96°58'	29.2	N	16
1-33	16	0952	15°20'	97°00'	29.1	M	9
1-34	16	1154	15°00'	97°00.5'	29.1	M	10
1-35	16	1328	14°42'	97°01.5'	29.6	M	20
1-36	16	1527	14°17'	97°02.5'	29.4	M	50
1-37	16	1726	13°54'	97°03'	30.5 ?	M	21
1-38	16	1840	13°40'	97°03.5'	31.0 ?	M	14
2	22	1320	13°37'	92°57'	29.0	M	33
2-1	22	2136	13°55.5'	93°04'	30.2	C	28
3	22	2345	14°22'	93°07'	29.7	N	20
3-1	23	0315	14°33'	93°18'	29.3	M	18
4	23	0630	14°56.5'	93°06.5'	30.2	M	14
5	23	1410	15°39'	93°59.5'	28.3	M	12
5-1	23	1706	15°21'	94°00'	28.1	M	10
6	23	2015	14°59.5'	94°01.5'	28.0	N	0
6-2	23	2327	14°39'	94°06'	26.0	C	15
7	24	0123	14°21.5'	94°02'	28.0	M	12
7-1	24	0545	14°01.5'	94°03'	28.2	M	9
8	24	0747	13°41.5'	94°04'	28.3	M	15
8-1	24	1343	13°39.5'	94°30'	27.8	-	-
9	24	1630	13°39'	94°52'	27.6	M	22
9-1	25	0345	14°01'	95°02.5'	27.6	M	-
10	25	0534	14°18'	95°03'	27.3	M	22
10-1	25	2058	14°40'	95°03'	25.4	M	23
11	25	2308	15°02'	95°07.5'	25.3	C	29
11-1	26	0406	15°16'	94°58'	25.6	-	-
12	26	0612	15°36'	94°55'	25.8	M	20
13	26	1135	15°42.5'	94°56'	26.6	M	16
13A	28	0230	15°43.5'	95°04.5'	27.5	N	11

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-58-2 (con.)

Slide Number	Date (1958)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
13-1	Nov. 28	0750	15°41.5'	95°31'	26.2	M	17
14	28	1040	15°39.5'	96°02'	26.0	N	43
14-1	28	1435	15°16'	95°59'	26.1	N	58
15	28	1640	14°55'	95°59'	26.6	N	0
16	29	1001	14°18'	96°03.5'	26.4	N	27
16-1	29	1425	14°00'	96°00'	26.8	M	26
17	29	1633	13°39'	95°59'	26.9	M	30
17-1	29	2000	13°42'	96°36.5'	26.8	M	24
18	29	2320	13°45'	97°09'	29.1	M	21
18-1	30	0325	14°01'	97°02'	29.2	M	20
19	30	0530	14°21'	97°00.5'	28.2	M	48
19-1	30	1425	14°40.5'	96°58.5'	25.2	M	72
20	30	1627	15°07'	96°55.5'	27.1	N	70
20-1	30	2156	15°21.5'	96°56'	27.8	N	0
21	30	2355	15°39.5'	96°53'	27.2	N	0,50
22	Dec. 1	0514	15°31'	97°43.5'	28.8	M	9
22-1	1	1100	15°33.5'	98°14'	28.6	N	35
22-2	1	1400	15°35.5'	98°49'	28.5	?	30
23	1	1700	15°36'	99°23.5'	30.1	M	37
23-1	1	2300	15°41.5'	99°48.5'	29.9	N	25
23-2	1	0125	15°48.5'	100°16'	29.5	C	29
24	2	0500	16°01.5'	100°54'	29.4	P	29
24-1	2	1100	16°25'	101°33.5'	29.7	P	28
24-2	2	1400	16°42'	102°03'	29.3	C	22
25	2	1700	16°58.5'	102°28'	29.0	M	27
25-1	2	2300	17°18'	103°05'	29.3	M	27
25-2	3	0205	17°36'	103°35'	29.0	C	25
26	3	0500	17°54'	104°06'	28.7	P	22
26-1	3	1500	18°34'	105°33'	28.1	M	32
26-2	3	1801	18°48.5'	106°02'	28.0	M	39
26-3	3	2100	19°14.5'	106°27.5'	27.8	C	32
26-4	4	0000	19°35'	106°49'	27.1	M	40
26-5	4	0100	19°57.5'	107°14'	27.4	M	42
26-6	4	0600	20°24'	107°35'	26.7	P	47
26-7	4	0900	20°49.5'	107°54'	25.6	?	50
26-8	4	1200	21°14'	108°17.5'	26.2	M	54
26-9	4	1500	21°37'	108°42.5'	25.8	Z	70
26-10	4	1801	22°00.5'	109°07.5'	25.9	P	65
26-11	4	2100	22°23.5'	109°34.5'	26.0	C	63
26-12	5	0000	22°47.5'	110°01'	26.1	M	54
26-13	5	0300	23°12'	110°29'	25.9	-	-
26-14	5	0600	23°35'	110°57.5'	24.3	-	-
26-15	5	0900	23°57'	111°24.5'	24.2	-	46
26-16	5	1200	24°19.5'	111°55'	24.3	M	36
26-17	5	1902	25°06'	112°52'	23.5	C	54
26-18	5	2322	25°37.5'	113°27'	22.8	M	41
27	6	0240	25°54.5'	113°07.5'	22.7	M	32
28	6	0538	25°35'	113°25'	23.4	M	42
29	6	0643	25°39'	113°31.5'	22.5	-	47
30	6	0812	25°34'	113°45.5'	22.0	M	31

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS

Cruise TO-59-1

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
1	Jan. 17	0743	28°38'	115°37'	17.6	M	58
1-1	17	1400	27°46'	115°15'	19.1	M	37
2	17	1835	27°12'	114°40'	19.5	M	31
2-1	18	0205	26°54'	114°10'	19.8	C	58
3	18	0633	26°30'	113°37'	20.0	M	47
3-1	18	1400	25°33'	113°21'	20.7	M	52
4	18	1800	25°05'	112°55'	22.0	N	50
4-1	19	0204	24°44'	112°34'	21.4	M	54
5	19	0723	24°18'	112°01'	23.1	M	31 - 61
5-1	19	1300	23°42'	111°16'	22.5	M	43
6	19	1702	23°13'	110°41'	23.2	M	44
6-1	20	0100	22°56'	110°14'	22.6	-	44
7	20	0600	22°25'	109°40'	24.4	P	52
7-1	20	1300	21°48'	108°54'	24.4	M	70
8	20	1703	21°17'	108°16'	24.4	M	78
8-1	21	0103	20°54'	107°47'	24.3	M	42
9	21	0830	20°32'	107°17'	25.1	M	53
9-1	21	1300	19°59'	106°36'	25.6	M	23
10	21	1800	19°34'	106°03'	25.4	M	20
10-1	22	0110	19°16'	105°23'	26.3	M	20
11	22	0620	19°04'	104°41'	27.3	M	23
11-1	22	1302	18°33'	103°58'	27.3	M	17
12	22	1703	18°10'	103°26'	27.4	M	24
12-1	23	0100	17°57'	102°47'	28.2	M	24
12-2	23	0702	17°31'	101°44'	28.1	-	22
12-3	23	1300	17°02'	100°38'	28.1	M	19
12-4	27	0100	16°04'	99°14'	28.6	C	22
13	27	0710	15°30'	98°39'	28.3	M	22
13-1	27	1310	15°08'	98°10'	28.3	M	9
13-2	27	1626	14°41'	97°45'	26.9 ?	N	12
14	27	1640	14°39'	97°43'	26.9	N	15
14-1	28	0004	14°13'	97°23'	29.5	N	0
15	28	0455	13°39'	97°06'	26.2	N	12 + 69
15-1	28	0830	13°54'	97°10'	28.5	M	9
16	28	1040	14°08'	97°14'	28.0	N	0
16-1	28	1715	14°38'	97°01'	28.5	M	10
17	28	1958	15°00'	97°00'	29.0	N	0
17-1	28	2350	15°20'	97°04'	28.0	N	0 - 86
18	29	0226	15°44'	97°06'	27.9	N	0 - 85
19	29	1425	15°38'	96°00'	27.0	M	20
19-1	29	1744	15°14'	96°06'	26.9	N	0 - 27
20	29	1920	15°00'	96°06'	28.3	N	0
20-1	29	2320	14°40'	96°05'	27.1 ?	N	0 - 56
21	30	0134	14°20'	96°03'	26.0 ?	N	0 - 42
21-1	30	0520	14°07'	95°53'	26.7	M	7
22	30	0734	13°47'	95°51'	26.5	M	9
22-1	30	1400	13°48'	95°27'	26.9	M	14
22-2	30	1540	13°48'	95°11'	27.0	M	18

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-59-1 (con.)

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
23	Jan. 30	2032	13°49'	94°57'	27.2	M	8
23-1	30	2255	14°00'	95°00'	26.8	M	13
24	30	0143	14°14'	95°06'	26.7	M	21
24-1	31	0920	14°33'	95°26'	25.8	M	14
24-2	31	1400	14°56'	95°54'	26.6	M	8
24-3	31	1620	14°58'	95°40'	25.4	M	27
24-4	31	1825	15°00'	95°18'	25.0	M	31
24-5	31	2325	15°12'	95°05'	26.0	M	30
24-6	Feb. 4	0231	15°40'	96°00'	27.1	N	60
24-7	4	0504	15°19'	96°00'	26.5	N	54
24-8	4	0740	14°58'	96°00'	26.4	M	38
24-9	4	0955	14°38'	96°01'	26.7	M	36
24-10	4	1209	14°17'	96°01'	26.6	M	42
24-11	4	1445	13°57'	96°00'	26.5	M	40
24-12	4	1716	13°36'	95°57'	27.1	M	28
24-13	4	1930	13°40'	95°40'	28.7	C	30
24-14	4	2152	13°40'	95°18'	27.8	C	27
24-15	5	0000	13°40'	94°56'	28.5	C	15
24-16	5	0212	14°00'	94°55'	27.6	C	20
24-17	5	0420	14°19'	95°00'	26.9	C	20
24-18	5	0812	14°30'	95°20'	25.9	C	34
24-19	5	1035	14°42'	95°42'	26.2	M	43
24-20	5	1250	14°42'	95°23'	25.9	C	37
24-21	5	1550	14°42'	95°04'	25.7	C	27
24-22	5	1725	14°42'	94°44'	28.0	C	22
24-23	5	1946	14°40'	94°18'	29.2 ?	-	17
24-24	5	2230	14°50'	94°38'	28.8 ?	C	14
25	6	0042	15°06'	95°01'	28.3	N	25
25-1	6	0535	15°19'	95°01'	25.2	N	0
25-2	7	0000	15°34'	93°56'	28.3	N	0
26	7	0500	14°47'	93°48'	27.5	M	27
26-1	7	1200	14°30'	92°55'	27.5	M	32
27	7	1600	14°01'	92°23'	28.3	C	55
27-1	8	0000	13°16'	91°57'	29.5	N	0
28	8	0440	12°41'	91°35'	27.5	N	0
28-1	8	1200	12°01'	91°12'	27.0	M	30
29	8	1645	11°40'	90°53'	26.4	M	32
29-1	9	0000	11°06'	90°32'	26.0	M	26
29-2	9	0100	11°10'	90°27'	25.3	M	45
29-3	9	0200	11°03'	90°23'	-	M	53
29-4	9	0300	11°02'	90°22'	25.2	M	51
29-5	9	0400	10°56'	90°21'	25.2	M	50
29-6	9	0500	10°50'	90°19'	25.4	M	48
29-7	9	0600	10°44'	90°18'	25.3	M	43
29-8	9	0700	10°38'	90°16'	24.8	M	40
29-9	9	0800	10°32'	90°14'	24.4	M	30
29-10	9	0900	10°26'	90°12'	24.3	M	29
29-11	9	1000	10°20'	90°11'	24.2	M	26
29-12	9	1100	10°15'	90°09'	24.0	M	28
29-13	9	1200	10°10'	90°08'	23.9	-	25

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-59-1 (con.)

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
29-14	Feb. 9	1300	10°06'	90°06'	23.9	M	19
29-15	9	1400	10°02'	90°01'	23.8	M	20
29-16	9	1500	9°56'	89°57'	23.9	M	16
29-17	9	1600	9°52'	89°52'	24.0	M	16
29-18	9	1700	9°46'	89°48'	24.2	M	15
29-19	9	1800	9°42'	89°45'	24.3	M	15
29-20	9	1900	9°38'	89°41'	24.4	M	13
29-21	9	2000	9°33'	89°35'	24.5	M	17
29-22	9	2100	9°27'	89°30'	24.6	M	9
29-23	9	2200	9°22'	89°24'	25.1	M	14
29-24	9	2300	9°18'	89°20'	25.3 ?	M	13
29-25	10	0000	9°14'	89°16'	25.6	M	10
29-26	10	0100	9°09'	89°12'	25.8	M	10
29-27	10	0200	9°03'	89°06'	25.9	C	10
29-28	10	0300	8°57'	89°02'	26.0	M	11
29-29	10	0400	8°52'	88°57'	26.0	M	14
29-30	10	0500	8°47'	88°52'	26.6	M	17
29-31	10	0600	8°41'	88°48'	26.9	M	15
29-32	10	0700	8°36'	88°42'	27.0	M	15
29-33	10	0800	8°30'	88°36'	27.2	M	20
29-34	10	0900	8°26'	88°31'	27.6	M	19
29-35	10	1000	8°20'	88°26'	27.6	M	19
29-36	10	1100	8°16'	88°21'	27.6	M	22
29-37	10	1200	8°11'	88°15'	27.8	M	18
29-38	10	1300	8°06'	88°11'	28.1	C	17
30-1	10	2215	8°22'	88°11'	28.3	N	18
31	10	2340	8°36'	88°16'	28.4	N	14
31-1	11	0227	8°48'	88°19'	28.0	M	11
32	11	0348	8°58'	88°22'	27.9	M	16
32-1	11	1030	9°16'	88°25'	27.7	M	15
33	11	1320	9°49'	88°32'	27.1	M	17
33-2	12	0000	10°02'	88°10'	26.8	M	20
33-3	12	0300	10°06'	88°02'	27.1	M	16
33-4	12	0600	10°10'	87°53'	26.7	M	16
33-5	12	0900	10°14'	87°46'	26.6	M	19
33-6	12	1200	10°19'	87°38'	26.4	M	19
33-7	12	1500	10°21'	87°27'	26.0	M	26
33-8	12	1800	10°24'	87°07'	26.4	M	11
33-9	12	2100	10°27'	86°48'	26.4	M	10
33-10	13	0000	10°45'	87°11'	25.9	M	12
33-11	13	0300	10°58'	87°45'	26.1	M	46
34	13	0500	11°07'	88°07'	25.3	M	54
34-1	13	1200	11°32'	89°06'	26.3	M	47
35	13	1600	12°06'	89°36'	25.7	M	43
35-1	14	0000	12°34'	90°28'	26.1	M	57
36	14	0400	13°01'	91°03'	26.7	C	48
36-1	14	1150	13°36'	91°51'	27.4	M	52
37A	14	1700	14°12'	92°35'	28.5	N	0-48
37B	14	1700	14°12'	92°35'	28.5	N	0
38	15	0500	15°00'	93°00'	28.5	N	0

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-59-1 (con.)

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
38-1	Feb. 15	1032	15°00'	93°31'	28.2	M	9
38-2	15	1330	15°03'	94°10'	27.8	M	11
38-3	15	1540	15°02'	94°30'	27.3	M	12
39	16	0400	15°37'	95°58'	27.4	C	49
39-1	16	1200	15°40'	97°20'	27.8	C	10
40A	16	1600	15°51'	97°58'	27.8	C	9
40B	16	1600	15°51'	97°58'	27.8	N	0
40-1	17	0100	16°08'	98°46'	29.0	C	17
41	17	0500	16°23'	99°28'	28.6	M	10
42	17	1215	16°42'	100°12'	28.4	M	38
42-1	18	0100	16°57'	100°56'	28.6	C	34
43	18	0500	17°14'	101°37'	28.4	M	34
43-1A	18	1300	17°31'	102°36'	27.8	M	31
43-1B	18	1300	17°31'	102°36'	27.8	M	29
44A	18	1700	17°47'	103°14'	27.2	M	13
44B	18	1700	17°47'	103°14'	27.2	M	11
44-1	19	0100	18°11'	103°46'	27.6	C	16
45	19	0500	18°34'	104°20'	26.5	M	27
45-1	19	1300	19°08'	104°58'	25.8	M	11
46A	19	1700	19°47'	105°44'	23.9	C	28
46B	19	1700	19°47'	105°44'	23.9	-	27
46C	19	2320	19°47'	105°44'	24.3	C	32
46D	19	0345	19°47'	105°44'	24.0	C	25
46-1	20	1300	20°19'	106°38'	24.9	M	40
47	20	1700	20°41'	107°10'	24.6	M	37
47-1	21	0100	21°10'	107°52'	24.5	C	27
48	21	0500	21°36'	108°25'	24.4	C	35
48-1	21	1300	22°20'	109°16'	23.4	M	23
49A	21	1700	22°42'	109°50'	22.7	C	34
49B	21	1700	22°42'	109°50'	22.7	C	30
49-1	22	0100	23°14'	110°34'	21.5	N	26
50	22	0500	23°40'	111°06'	20.2	M	49
50-1	22	1300	24°22'	111°59'	20.7	M	47
51	22	1800	24°58'	112°36'	19.4	M	48

*The following slides were lost: 18-1, 18-2, 30, and 33-1.

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS

Cruise TO-59-2

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
T-1	Aug. 14	0720	32°11.5'	117°17'	22.8	N	0
T-2	14	0729	32°11.5'	117°17'	22.8	N	0
T-3	14	0738	32°11.5'	117°17'	22.8	N	0
T-4	14	0749	32°11.5'	117°17'	22.8	M	7
T-5	14	0757	32°11.5'	117°17'	22.8	M	8
T-6	14	0808	32°11.5'	117°17'	22.8	M	9
1A	16	0135	26°29'	113°29'	25.2	M	11
1B	16	0140	26°29'	113°29'	25.2	M	10
2A	16	0636	26°19'	113°52'	22.0	M	12
2B	16	0640	26°19'	113°52'	22.0	M	12
3A	16	1155	26°11'	114°10.5'	21.5	M	12
3B	16	1205	26°11'	114°10.5'	21.5	M	12
4A	16	1600	25°58.5'	114°25'	25.2	M	20
4B	16	1605	25°58.5'	114°25'	25.2	M	18
5A	16	1923	25°44.5'	114°42.5'	25.4	M	16
5B	16	1927	25°44.5'	114°42.5'	25.4	M	15
6A	17	0120	25°39'	115°04.5'	25.0 ?	M	20
6B	17	0120	25°39'	115°04.5'	25.0 ?	M	18
7A	17	0420	25°35'	115°27.5'	24.5 ?	M	23
7B	17	0420	25°35'	115°27.5'	24.5 ?	M	21
8A	17	0950	25°19'	115°43'	25.4	M	25
8B	17	0950	25°19'	115°43'	25.4	M	22
9A	17	1240	25°08.5'	116°04'	25.2	M	17
9B	17	1246	25°08.5'	116°04'	25.2	M	18
9-1A	17	1638	24°51'	115°54'	25.4	M	20
9-2B	17	1654	24°51'	115°54'	25.4	M	20
10A	17	1925	24°31'	115°45'	25.5	M	26
10B	17	1925	24°31'	115°45'	25.5	M	22
11A	18	0100	24°44.5'	115°23.5'	25.2	M	16
11B	18	0100	24°44.5'	115°23.5'	25.2	M	16
12A	18	0406	24°55'	115°02'	25.3	M	18
12B	18	0406	24°55'	115°02'	25.3	M	17
13A	18	0845	25°06.5'	114°43'	25.1	M	18
13B	18	0845	25°06.5'	114°43'	25.1	M	17
14A	18	1150	25°21'	114°26.5'	24.9	M	17
14B	18	1150	25°21'	114°26.5'	24.9	M	17
15A	18	1625	25°24.5'	114°05'	23.9	M	23
15B	18	1625	25°24.5'	114°05'	23.9	M	22
16A	18	1915	25°35'	113°44'	22.9	M	8
16B	18	2115	25°35'	113°44'	22.9	C	8
17A	19	0258	25°47'	113°26'	23.1	M	13
17B	19	0258	25°47'	113°26'	23.1	M	12
18A	19	0535	25°56'	113°07'	25.0	M	13
18B	19	0535	25°56'	113°07'	25.0	M	12
19A	19	0905	26°05'	112°48.5'	25.1	M	11
19B	19	0905	26°05'	112°48.5'	25.1	C	10
19-1A	19	1215	25°52'	112°36'	24.5 ?	M	8
19-1B	19	1215	25°52'	112°36'	24.5	M	9
20A	19	1745	25°34.5'	113°22.5'	23.0	M	8
21A	20	0810	25°00'	113°24'	23.8	M	9

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-59-2 (con.)

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
21B	Aug. 20	0810	25°00'	113°24'	23.8	-	-
22A	20	1200	24°54'	113°48'	23.2	C	20
22B	20	1200	24°54'	113°48'	23.2	N	20
23A	20	1515	24°40'	114°02'	21.2 ?	M	17
23B	20	1515	24°40'	114°02'	21.2 ?	M	14
24A	20	1843	24°29'	114°22'	24.2	M	18
24B	20	1843	24°29'	114°22'	24.2	C	26
25A	21	2330	24°19'	111°48'	26.3 ?	M	10
26A	22	0200	24°10.5'	112°03'	27.3	M	13
26-1A	22	0500	24°28'	112°08'	27.0	M	12
27A	22	0700	24°45'	112°24'	26.9	M	8
27-1A	22	1140	25°09'	112°23'	26.6	M	8
28A	22	1325	25°32.5'	112°22.5'	25.6	M	9
29A	22	1729	25°22'	112°47.5'	27.0	M	19
29B	22	1729	25°22'	112°47.5'	27.0	M	20
30A	22	2008	25°14'	113°03'	26.8	C	23
30B	22	2008	25°14'	113°03'	26.8	C	19
30-1A	23	0100	24°55'	112°51'	26.4 ?	C	15
30-1B	23	0100	24°55'	112°51'	26.4 ?	C	16
31A	23	0400	24°36'	112°39'	27.1	M	18
31B	23	0400	24°36'	112°39'	27.1	C	18
32A	23	0715	24°25.5'	113°02.5'	25.8	M	16
32B	23	0715	24°25.5'	113°02.5'	25.8	M	16
33A	23	1220	24°18'	113°25'	25.9	M	13
33B	23	1220	24°18'	113°25'	25.9	M	11
34A	23	1630	24°08'	113°42.5'	24.2	M	18
34B	23	1630	24°08'	113°42.5'	24.2	M	16
35A	23	2345	23°55'	114°01.5'	26.0	C	15
35B	23	2345	23°55'	114°01.5'	26.0	N	0
36A	24	0230	23°44.5'	114°22'	26.2	M	31
36B	24	0230	23°44.5'	114°22'	26.2	M	31
37A	24	0545	23°36'	114°37'	25.5	M	16
37B	24	0545	23°36'	114°37'	25.5	M	19
38A	24	0900	23°26'	114°55'	26.1	N	29
38B	24	0900	23°26'	114°55'	26.1	N	0
38-1A	24	1315	23°07.5'	114°43.5'	24.3	M	21
38-1B	24	1316	23°07.5'	114°43.5'	24.3	M	22
39A	24	1545	22°50'	114°32.5'	24.9	M	20
39B	24	1545	22°50'	114°32.5'	24.9	M	19
40A	24	2315	23°00'	114°14.5'	25.1	C	22
40B	24	2315	23°00'	114°14.5'	25.1	N	20
41A	25	0140	23°12.5'	114°04'	25.4	M	13
41B	25	0140	23°12.5'	114°04'	25.4	M	13
42A	25	0750	23°20'	113°39.5'	24.9	M	21
42B	25	0750	23°20'	113°39.5'	24.9	M	20
43A	25	1055	23°26.5'	113°19'	25.4	M	14
43B	25	1100	23°26.5'	113°19'	25.4	M	18
44A	25	1510	23°40'	112°58'	25.6	M	17
44B	25	1510	23°40'	112°58'	25.6	M	17
45A	25	1730	23°51'	112°40.5'	26.4	M	20
45B	25	1730	23°51'	112°40.5'	26.4	M	21
46A	26	0030	24°12.5'	112°25'	26.9	M	26

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-59-2 (con.)

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
46B	Aug. 26	0030	24°12.5'	112°25'	26.9	M	22
46-1A	26	0430	24°07.5'	111°58'	26.8	M	27
46-2A	26	0725	23°58.5'	111°30'	27.1	M	26
47A	26	1035	23°47.5'	110°59.5'	27.3	M	25
47B	26	1035	23°47.5'	110°59.5'	27.3	M	20
48A	26	1410	23°37'	111°19'	26.9	M	25
48B	26	1410	23°37'	111°19'	26.9	M	24
49A	26	1903	23°36'	111°49'	26.3	M	30
49B	26	1903	23°36'	111°49'	26.3	M	30
50A	26	2230	23°26'	112°00'	26.5	M	35
50B	26	2230	23°26'	112°00'	26.5	M	36
51A	27	0130	23°20.5'	112°15.5'	26.0	M	25
51B	27	0130	23°20.5'	112°15.5'	26.0	M	25
52A	27	0710	23°10'	112°39.5'	26.6	M	18
52B	27	0710	23°10'	112°39.5'	26.6	M	16
53A	27	1015	23°02'	113°00'	25.3	M	24
53B	27	1015	23°02'	113°00'	25.3	M	24
54A	27	1420	22°54'	113°18.5'	25.3	M	23
54B	27	1420	22°54'	113°18.5'	25.3	M	20
55A	27	1810	22°40'	113°35'	26.3	M	32
55B	27	1810	22°40'	113°35'	26.3	M	31
55-1B	27	2150	22°19'	113°24'	25.8	C	32
56A	28	0025	22°02'	113°14'	24.8	M	23
56B	28	0025	22°02'	113°14'	24.8	M	22
57A	28	0400	22°14'	112°54'	25.0	M	16
57B	28	0400	22°14'	112°54'	25.0	M	16
58A	28	0750	22°27.5'	112°30'	25.2	C	24
58B	28	0750	22°27.5'	112°32'	25.2	C	20
59A	28	1140	22°41'	112°12'	26.9	M	25
59B	28	1140	22°41'	112°12'	26.9	M	25
60A	28	1400	22°48'	111°59.5'	26.9	M	22
60B	28	1400	22°48'	111°59.5'	26.9	M	22
61A	28	1755	22°50.5'	111°41.5'	27.1	C	27
61B	28	1755	22°50.5'	111°41.5'	27.1	C	22
62A	28	2300	23°02'	111°21'	27.5	C	25
62B	28	2300	23°02'	111°21'	27.5	C	27
63A	29	0225	23°12'	111°04'	27.3	C	27
63B	29	0225	23°12'	111°04'	27.3	C	27
64A	29	0810	23°24'	110°39'	27.6	N	0
64B	29	0810	23°24'	110°39'	27.6	N	0
64-1A	29	1130	23°00.5'	110°34.5'	29.1	M	16
64-1B	29	1130	23°00.5'	110°34.5'	29.1	M	16
65A	29	1405	22°39.5'	110°35.5'	28.7	M	19
65B	29	1405	22°39.5'	110°35.5'	28.7	M	14
66A	29	1720	22°46'	110°22.5'	30.1	M	12
66B	29	1720	22°46'	110°22.5'	30.1	M	10
67A	29	2115	22°55.5'	110°12.5'	30.6	N	0
67B	29	2115	22°55.5'	110°12.5'	30.6	N	0
67-1	Sept. 1	0105	24°03.5'	109°44.5'	29.6	N	0
67-3	3	0405	22°46'	106°23.5'	30.2	N	0
67-4	3	0710	22°18'	106°19.5'	29.8	C	40
67-5	3	1010	21°50'	106°15'	30.7	-	-

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-59-2 (con.)

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
67-6	Sept. 3	1310	21°21'	106°08'	30.3	N	32
67-7	3	1605	20°52.5'	106°00'	29.7	C	32
67-8	3	1900	20°25'	105°50'	30.2	C	35
67-9	3	2205	19°59'	105°34'	30.6	N	0
67-10	3	1505	19°34.5'	105°17.5'	29.6	M	40
67-11	3	0405	19°11'	104°57'	30.2	N	0
67-12	4	0705	18°55'	104°30.5'	29.6	C	24
68A	4	1350	18°39'	103°59.5'	29.6	M	39
68B	4	1350	18°39'	103°59.5'	29.6	C	31
68-1	5	0105	18°13.5'	103°25.5'	30.6	N	37
68-2	5	0405	18°03'	102°58.5'	29.4	N	36
68-3	5	0705	17°50.5'	102°33.5'	29.3	P	41
68-4	5	1010	17°38'	102°08'	29.5	C	47
68-7	6	0405	17°02'	100°46.5'	29.5	C	54
68-8	6	0705	16°49'	100°23'	29.4	P	38
68-9	6	1005	16°36.5'	100°00'	29.5	P	46
68-10	6	1300	16°24'	99°38.5'	29.2	P	49
68-11	6	1605	16°14.5'	99°14'	29.7	P	50
68-12	6	1905	16°06'	98°43'	30.4	M	39
68-13	6	2205	15°59.5'	98°16.5'	30.6	M	32
68-14	7	0105	15°52.5'	97°49.5'	29.9	M	20
68-15	7	0400	15°45'	97°21.5'	29.6	C	43
69A	7	0730	15°39'	97°00'	29.5	M	43
69B	7	0730	15°39'	97°00'	29.5	M	46
69-1	7	1240	15°18.5'	97°06'	29.4	C	46
70A	7	1515	15°00'	97°00'	29.9	C	42
70B	7	1515	15°00'	97°00'	29.9	M	43
70-1A	7	2245	14°34'	97°02'	30.2	C	41
70-1B	7	2245	14°34'	97°02'	30.2	C	43
71A	8	0030	14°19'	97°02'	30.2	C	40
71B	8	0030	14°19'	97°02'	30.2	C	42
71-1B	8	0450	14°00'	97°00'	29.7	M	36
72A	8	0730	13°39.5'	97°00'	29.7	M	39
72B	8	0730	13°39.5'	97°00'	29.7	M	43
72-1A	8	1145	13°36'	96°45'	29.4	M	35
72-1B	8	1145	13°36'	96°45'	29.4	M	38
72-2	8	1545	13°41'	96°19.5'	29.6	M	37
73A	8	1845	13°42.5'	95°56'	29.6	M	37
73B	8	1845	13°42.5'	95°56'	29.6	C	31
73-1	9	0043	14°02.5'	95°58'	30.0	M	33
74A	9	0312	14°20'	95°59'	29.9	C	30
74B	9	0312	14°20'	95°59'	29.9	C	28
74-1	9	0850	14°40'	96°01'	29.4	C	29
75A	9	1120	15°01.5'	96°03'	29.1	M	27
75B	9	1120	15°01.5'	96°03'	29.1	M	30
75-1	9	1550	15°20'	96°03'	30.1	C	40
76A	9	1840	15°35'	96°02.5'	30.2	M	27
76B	9	1840	15°35'	96°02.5'	30.2	M	20
76-1	9	0045	15°40.5'	95°36'	30.3	N	4,29
76-2	10	0230	15°41'	95°19.5'	29.5	C	32
77A	10	1625	15°41.5'	94°54'	29.2	M	35
77-1	10	2240	15°17'	95°00'	29.0	M	28

Table 4.--Continued

SUMMARY OF BATHYTHERMOGRAPH OBSERVATIONS, CRUISE TO-59-2 (con.)

Slide Number	Date (1959)	Time (G.c.t.)	Latitude (N.)	Longitude (W.)	Surface Temp. (°C.)	Class	Surface Layer (m.)
78A	Sept. 11	0100	14°54'	95°07'	29.0	M	19
78B	11	0100	14°54'	95°07'	29.0	M	20
79A	11	0440	14°40'	95°03'	29.1	M	20
79B	11	0440	14°40'	95°03'	29.1	M	20
80A	11	0835	14°23.5'	94°57.5'	29.1	M	17
80B	11	0835	14°23.5'	94°57.5'	29.1	M	16
80-1	11	1323	13°59'	94°59'	29.1	M	12
81A	11	1600	13°39.5'	95°00'	29.2	M	14
81B	11	1600	13°39.5'	95°00'	29.2	M	14
81-1B	11	2255	13°38'	94°41.5'	29.7	N	8
81-2B	12	0115	13°40.5'	94°22.5'	29.5	M	10
82A	12	0510	13°40'	94°00'	29.4	M	7
82B	12	0510	13°40'	94°00'	29.4	N	0
82-1	12	0945	14°00'	94°00'	29.6	M	11
83A	12	1230	14°21.5'	94°01'	29.6	M	13
83B	12	1230	14°21.5'	94°01'	29.6	M	15
83-1	12	1650	14°43.5'	94°04'	29.2	M	20
83-2	12	1855	15°01'	94°05.5'	29.5	C	15
83-3	12	2100	15°05'	94°27'	28.9	C	30
83-4	13	0005	15°11'	95°00'	28.7	M	32
83-5	13	0305	15°16'	95°34'	28.8	M	20
*83-7	13	0905	15°30'	96°35'	29.8	M	37
83-8	13	1210	15°37'	97°03'	29.7	M	16
84A	14	0410	16°28'	99°32.5'	29.9	M	37
84B	14	0410	16°28'	99°32.5'	29.9	C	28
85A	16	0730	17°09.5'	101°17'	30.2	N	35
85B	16	0730	17°09.5'	101°17'	30.2	N	40
86A	17	0730	18°40'	104°09'	29.2	M	42
86B	17	0730	18°40'	104°09'	29.2	M	31
86-1	17	1603	19°10'	104°55'	29.4	N	30
86-2	17	1905	19°21'	105°17'	30.1	M	48
86-3	17	2200	19°37'	105°41.5'	30.0	N	0
86-4	18	0100	19°51.5'	106°05'	29.1	M	50
87A	18	0400	20°09'	106°32'	28.6	M	47
87B	18	0400	20°09'	106°32'	28.6	M	45
87-1	18	1300	20°38'	107°00'	28.1	N	0
87-2	18	1605	20°56.5'	107°22'	28.9	N	0
87-3	18	1900	21°13.5'	107°52'	29.6	N	45
87-4	18	2200	21°28'	108°14.5'	30.1	N	34
87-5	19	0100	21°45'	108°39'	29.3	C	34
88A	19	0620	22°00.5'	109°04.5'	29.1	M	25
88B	19	0620	22°00.5'	109°04.5'	29.1	N	27
88-1	19	1000	22°20'	109°27.5'	28.6	C	16
88-2	19	1307	22°40'	109°52'	28.1	N	0
89A	20	0610	24°16.5'	111°59.5'	26.7	M	26
89B	20	0610	24°16.5'	111°59.5'	26.7	M	27
90A	20	1903	25°40'	113°03'	24.9	C	25
91A	21	0530	26°33.5'	113°54'	23.0	M	17
91B	21	0530	26°33.5'	113°54'	23.0	M	18

*Slide No. 83-6 missing.

Table 5. Summary of surface current (GEK) observations.

SUMMARY OF SURFACE CURRENT (GEK) OBSERVATIONS

Cruise TO-58-2

Current Fix No.	Date (1958)	Latitude (N.)	Longitude (W.)	Direction (°T.)	Velocity (cm./sec.)
0-1	Nov. 3	24°56'	113°20'	079	12.2
0-2	3	24°35'	112°49'	233	32.9
0-3	3	24°17'	112°20'	092	15.7
0-4	4	23°58'	111°52'	188	20.4
0-5	4	23°43'	111°11'	060	4.96
0-6	4	23°25'	110°42'	218	37.6
0-7	4	23°06'	110°22.5'	267	35.0
0-8	4	22°42'	110°02'	205	15.0
0-9	4	22°18'	109°42'	277	37.6
0-10	4	21°55'	109°20'	005	15.8
0-11	4	21°33'	108°57'	275	6.3
0-12	5	21°11'	108°34'	081	20.0
0-13	5	20°50'	108°10'	016	35.5
0-14	5	20°28'	107°48'	309	26.1
0-15	5	20°04'	107°28'	310	15.9
0-16	5	19°40'	107°08'	207	4.4
0-17	5	19°16'	106°50'	008	4.2
0-18	5	18°52'	106°28'	-	-
0-19	6	18°05'	105°40'	327	1.3
0-20	6	17°50'	105°09'	115	9.9
0-21	6	17°34'	104°39'	140	10.0
0-22	6	17°16'	104°10'	097	9.2
0-23	6	17°00'	103°40'	146	17.0
0-24	6	16°45'	103°13'	163	8.3
0-25	6	16°31'	102°45'	177	5.9
0-26	6	16°17'	102°15'	184	12.6
0-27	7	16°04'	101°46'	282	10.6
0-28	7	15°52'	101°16'	240	7.1
0-29	7	15°42'	100°46'	286	40.4
1-1	13	15°01'	93°02'	102	20.1
1-2	13	14°41'	93°00'	336	8.2
1-3	13	14°24'	92°59'	003	19.7
1-4	13	14°02'	92°59'	301	28.1
1-5	13	13°43'	92°58'	317	19.6
1-6	13	13°42'	93°29'	261	23.3
1-7	13	13°38'	94°02'	273	31.2
1-8	13	13°58'	94°03'	256	27.1
1-9	13	14°19'	94°05'	306	38.9
1-10	13	14°41'	94°01'	301	29.7
1-11	13	14°59'	94°01'	327	44.3
1-12	13	15°19'	94°02'	343	23.2
1-13	13	15°39'	94°03'	054	3.4
1-14	14	15°50'	94°36'	227	38.4
1-15	14	15°58'	95°00'	192	91.0
1-16	14	15°40'	95°00'	229	81.9
1-17	14	15°18'	95°00'	259	70.5
1-18	14	14°56'	95°00'	237	58.7
1-19	14	14°47'	95°05'	282	47.5

Table 5.--Continued

SUMMARY OF SURFACE CURRENT (GEK) OBSERVATIONS, CRUISE TO-58-2 (con.)

Current Fix No.	Date (1958)	Latitude (N.)	Longitude (W.)	Direction (°T.)	Velocity (cm./sec.)
1-20	Nov. 14	14°39'	95°06'	292	60.9
1-21	14	14°21'	95°00'	312	47.2
1-22	15	14°01'	95°00'	016	13.1
1-23	15	13°40'	95°00'	266	2.2
1-24	15	13°39'	95°28'	136	37.0
1-25	15	13°39'	95°59'	084	27.9
1-26	15	13°58'	95°59'	133	22.9
1-27	15	14°17'	95°58'	181	30.3
1-28	15	14°40'	96°00'	245	20.3
1-29	15	15°00'	96°00'	290	31.5
1-30	15	15°21'	96°01'	267	25.0
1-31	15	15°38'	96°01'	308	10.3
1-32	16	15°40'	96°58'	032	22.2
1-33	16	15°20'	97°00'	085	13.7
1-34	16	15°00'	97°00'	143	37.9
1-35	16	14°42'	97°01'	162	74.7
1-36	16	14°17'	97°02'	180	111.3
1-37	16	13°54'	97°03'	190	110.0
1-38	16	13°49'	97°03'	196	102.4
3-1	22	14°33'	93°18'	252	10.7
4	23	14°56'	93°06'	256	7.4
5	23	15°39'	93°59'	267	59.5
5-1	23	15°21'	94°00'	280	50.9
6-1	23	14°53'	94°04'	270	46.9
6-2	23	14°39'	94°06'	276	53.5
7	23	14°21'	94°02'	297	43.8
7-1	23	14°02'	94°03'	299	41.8
8	24	13°41'	94°04'	299	21.3
9	24	13°39'	94°52'	182	25.8
9-1	24	14°01'	95°02.5'	233	37.6
10	24	14°18'	95°03'	237	57.1
10-1	25	14°40'	95°03'	223	123.9
11	25	15°02'	95°07.5'	217	128.3
11-1	25	15°16'	94°58'	216	64.3
12	25	15°36'	94°55'	173	60.3
13	26	15°42.5'	94°56'	169	80.0
13-1	28	15°41.5'	95°31'	256	21.9
14	28	15°39.5'	96°02'	064	46.7
14-1	28	15°20'	96°00'	105	89.6
15	28	14°55	95°59'	183	77.0
16	29	14°18'	96°03.5'	258	89.7
16-1	29	14°00'	96°00'	222	43.0
17	29	13°39'	95°59'	215	61.9
18	29	13°45'	97°09'	286	60.2
18-1	29	14°01'	97°02'	257	36.2
19	29	14°21'	97°00.5'	201	68.2
19-1	30	14°40.5'	96°58.5'	310	90.0
20	30	15°07'	96°55.5'	016	64.2
20-1	30	15°21'	96°56'	037	90.3
21	30	15°39.5'	96°53'	238	20.2

Table 5.--Continued

SUMMARY OF SURFACE CURRENT (GEK) OBSERVATIONS

Cruise TO-59-1

Current Fix No.	Date (1959)	Latitude (N.)	Longitude (W.)	Direction (°T.)	Velocity (cm./sec.)
16	Jan. 28	14°07'	97°14'	035	60.6
17	28	14°58'	97°02'	075	26.8
17-1	28	15°25'	97°04'	060	49.9
18	28	15°42.5'	97°05'	090	8.1
18-1	29	15°33'	96°43'	079	36.7
18-2	29	15°30'	96°20'	052	87.5
19	29	15°38.5'	96°02'	060	111.8
19-1	29	15°16.5'	96°06'	033	44.0
20	29	15°02'	96°06'	340	32.0
20-1	29	14°41'	96°05'	047	39.1
21	29	14°22'	96°03.5'	028	37.5
21-1	29	14°08'	95°53.5'	035	10.3
22	30	13°48'	95°51'	048	24.2
22-1	30	13°47'	95°28'	087	17.2
22-2	30	13°47.5'	95°11.5'	110	33.7
23	30	13°48.5'	94°57'	199	20.8
23-1	30	13°59'	95°00'	087	42.8
24	30	14°13'	95°05'	081	38.9
24-1	31	14°57'	95°45.5'	171	50.1
24-6	Feb. 3	15°40'	95°59'	190	4.9
24-7	3	15°20'	96°00'	197	18.1
24-8	4	14°59'	96°00.5'	209	36.5
24-9	4	14°38.5'	96°01'	225	33.7
24-10	4	14°18'	96°01'	035	6.8
24-11	4	13°58'	96°00'	039	7.3
24-12	4	13°37.5'	95°57'	295	21.9
24-13	4	13°40'	95°21.5'	311	28.9
24-14	4	13°40'	95°19.5'	270	8.6
24-15	4	13°40'	94°57'	264	17.6
24-16	4	13°59'	94°55'	337	20.2
24-17	4	14°18'	95°00'	057	20.7
24-18	5	14°29'	95°18.5'	077	38.8
24-19	5	14°41'	95°41.5'	032	27.2
24-20	5	14°41.5'	95°24'	043	18.7
24-21	5	14°42'	95°05'	136	32.8
24-22	5	14°42'	94°44.5'	169	44.0
24-23	5	14°40'	94°19'	169	51.7
24-24	5	14°49'	94°37'	188	53.3
25	5	15°05'	95°00'	233	30.5
25-1	5	15°19'	95°01'	240	24.6
25-2	6	15°38.5'	95°01'	024	59.4
38-1	15	15°00'	93°30'	112	50.5
38-2	15	15°03'	94°05'	144	34.5

Table 5.--Continued

SUMMARY OF SURFACE CURRENT (GEK) OBSERVATIONS

Cruise TO-59-2

Current Fix No.	Date (1959)	Latitude (N.)	Longitude (W.)	Direction (°T.)	Velocity (cm./sec.)
69	Sept. 6	15°39'	97°00'	153	12.2
69-1	7	15°18'	97°05'	042	10.4
70	7	15°00'	97°00'	222	4.1
70-1	7	14°34'	97°02'	281	40.3
71	7	14°19'	97°02'	276	23.3
71-1	7	14°00'	97°00'	260	38.0
72	8	13°39'	97°00'	267	43.1
72-1	8	13°36'	96°45'	289	23.3
72-2	8	13°41'	96°19'	312	21.8
73	8	13°42'	95°56'	239	33.9
73-1	8	14°02'	95°58'	174	33.6
74	8	14°20'	95°59'	169	44.1
74-1	9	14°40'	96°01'	229	38.4
75	9	15°01'	96°02'	237.5	43.6
75-1	9	15°20'	96°03'	189	27.0
76	9	15°35'	96°02'	116	10.4
76-1	9	15°40'	95°36'	356	11.3
76-2	9	15°41'	95°19'	165	10.4
77	10	15°41'	94°54'	199	94.3
77-1	10	15°17'	95°00'	219	75.6
78	10	14°54'	95°07'	181	29.3
79	10	14°40'	95°02'	174	48.3
80	11	14°23'	94°57'	226	20.0
80-1	11	13°59'	94°59'	280	7.0
81	11	13°39'	95°00'	256	18.9
81-1	11	13°38'	94°41'	222	19.6
81-2	11	13°40'	94°22'	215	12.3
82	11	13°40'	94°00'	227.5	24.9
82-1	12	14°00'	94°00'	268	29.6
83	12	14°21'	94°01'	254	26.6
83-1	12	14°43'	94°03'	296.5	12.3
83-2	12	15°01'	94°05'	310	29.9

Table 6. Summary of high-speed net (micronekton) observations.

SUMMARY OF HIGH-SPEED NET (MICRONEKTON) OBSERVATIONS, CRUISE TO-59-2

(Positions are station positions and/or underway BT observations, the former not hyphenated, the latter hyphenated. Volumes are actual displacement volumes of catch minus tunicates, siphonophores, and medusae.)

Between Positions	Date (1959)	Local Time Begun	Time Zone	Duration (min.)	Volume (ml.)
4 and 5	Aug. 16	0859	+8	126	0
5 " 6	16	1505	+8	127	2
6 " 7	16	1804	+8	126	9
7 " 8	16	2133	+8	128	0
8 " 9	17	0223	+8	132	81
9 " 9-1	17	0625	+8	125	15
9-1 " 10	17	0854	+8	126	0
10 " 11	17	1417	+8	153	0
11 " 12	17	1703	+8	150	75
12 " 13	17	2100	+8	126	16
13 " 14	18	0130	+8	130	89
14 " 15	18	0535	+8	126	0
15 " 16	18	0825	+8	130	2
17 " 18	18	1924	+8	120	283
18 " 19	18	2235	+8	135	35
19 " 19-1	19	0200	+8	140	62
19-1 " 19-2	19	0420	+8	120	258
20 " 21	19	1835	+8	85	214
21 " 22	20	0125	+8	125	56
22 " 23	20	0435	+8	137	27
23 " 24	20	0829	+8	126	0
25 " 26	21	1615	+8	95	15
26 " 26-1	21	1852	+8	122	30
26-1 " 27	21	2100	+8	122	21
27 " 27-1	22	0008	+8	149	3
27-1 " 28	22	0255	+8	150	12
28 " 29	22	0620	+8	140	8
29 " 30	22	0959	+8	101	2
30 " 30-1	22	1425	+8	145	11
30-1 " 31	22	1710	+8	118	1380
31 " 32	22	2144	+8	91	39
32 " 33	23	0205	+8	125	200
35 " 36	23	1615	+8	123	73
36 " 37	23	2000	+8	103	40
37 " 38	23	2155	+8	125	23
38 " 38-1	24	0320	+8	100	45
38-1 " 39	24	0518	+8	125	6
40 " 41	24	1520	+8	140	131
41 " 42	24	1915	+8	165	46
42 " 43	25	0035	+8	190	24
43 " 44	25	0420	+8	140	25
46 " 46-1	25	1840	+7	168	25
46-1 " 46-2	25	2135	+7	168	16
46-2 " 47	26	0032	+7	173	54
47 " 48	26	0425	+7	125	0
48 " 49	26	0740	+7	195	0
49 " 50	26	1345	+7	100	0
50 " 51	26	1550	+7	132	0
51 " 52	26	1945	+7	165	35
52 " 53	27	0045	+7	133	25

Table 6.--Continued

SUMMARY OF HIGH-SPEED NET (MICRONEKTON) OBSERVATIONS, CRUISE TO-59-2 (con.)

Between Positions	Date (1959)	Local Time Begun	Time Zone	Duration (min.)	Volume (ml.)
53 " 54	Aug. 27	0420	+7	140	703
54 " 55	27	0725	+7	145	0
55 " 55-1	27	1238	+7	123	0
55-1 " 56	27	1500	+7	125	0
56 " 57	27	1836	+7	124	44
57 " 58	27	2116	+7	132	14
58 " 59	28	0220	+7	135	6
59 " 60	28	0520	+7	72	4
60 " 61	28	0811	+7	117	0
61 " 62	28	1325	+7	145	0
62 " 63	28	1705	+7	124	0
63 " 64	28	2038	+7	160	0
64 " 64-1	29	0220	+7	125	25
64-1 " 65	29	0440	+7	121	12
65 " 66	29	0825	+7	100	13
66 " 67	29	1305	+7	60	13
67-1 " 67-2	31	1820	+7	120	8
67-3 " 67-4	Sept. 2	2100	+7	180	11
67-4 " 67-5	3	0005	+7	175	18
67-5 " 67-6	3	0315	+7	170	24
67-6 " 67-7	3	0005	+7	175	7
67-7 " 67-8	3	0910	+7	175	13
67-10 " 67-11	3	1805	+7	175	24
67-11 " 67-12	3	2105	+7	180	27
68-1 " 68-2	4	1815	+7	170	133
68-2 " 68-3	4	2115	+7	170	86
68-3 " 68-4	5	0015	+7	165	100
68-4 " 68-5	5	0312	+7	168	43
68-6 " 68-7	5	1810	+7	170	53
68-7 " 68-8	5	2115	+7	165	21
68-8 " 68-9	6	0015	+7	170	13
68-9 " 68-10	6	0315	+7	165	0
68-10 " 68-11	6	0610	+7	170	1
68-11 " 68-12	6	0912	+7	168	0
68-12 " 68-13	6	1212	+7	168	0
68-14 " 68-15	6	1815	+7	165	25
68-15 " 69	6	2110	+7	114	70
69 " 69-1	7	0420	+6	105	5
69-1 " 70	7	0642	+6	126	0
70 " 70-1	7	1415	+6	125	0
70-1 " 71	7	1655	+6	85	0
71 " 71-1	7	2055	+6	95	4
71-1 " 72	7	2305	+6	110	9
72 " 72-1	8	0350	+6	100	3
72-1 " 72-2	8	0610	+6	170	0
72-2 " 73	8	0931	+6	101	0
73 " 73-1	8	1630	+6	110	0
73-1 " 74	8	1850	+6	115	6
74 " 74-1	9	0040	+6	100	6
74-1 " 75	9	0255	+6	170	0
75 " 75-1	9	0744	+6	106	2
75-1 " 76	9	1000	+6	80	0
76 " 76-1	9	1610	+6	130	0
76-1 " 76-2	9	1847	+6	85	31

Table 6.--Continued

SUMMARY OF HIGH-SPEED NET (MICRONEKTON) OBSERVATIONS, CRUISE TO-59-2 (con.)

Between Positions			Date (1959)	Local Time Begun	Time Zone	Duration (min.)	Volume (ml.)
76-2	"	76-2A	Sept. 9	2038	+6	82	6
77	"	77-1	10	1420	+6	120	0
77-1	"	78	10	1647	+6	98	0
78	"	79	10	2115	+6	60	2
79	"	80	11	0038	+6	87	41
80	"	80-1	11	0450	+6	128	15
80-1	"	81	11	0733	+6	111	2
81	"	81-1	11	1505	+6	80	2
81-1	"	81-2	11	1700	+6	108	2
81-2	"	82	11	1920	+6	140	16
82	"	82-1	12	0155	+6	90	13
82-1	"	83	12	0400	+6	115	12
83	"	83-1	12	0835	+6	115	8
83-1	"	83-2	12	1057	+6	85	2
83-2	"	83-3	12	1258	+6	122	0
83-3	"	83-4	12	1520	+6	155	5
83-4	"	83-5	12	1815	+6	180	1
83-5	"	83-6	12	2130	+6	145	11
83-6	"	83-7	13	0005	+6	175	11
83-7	"	83-8	13	0305	+6	180	77
86-1	"	86-2	17	0912	+7	168	0
86-2	"	86-3	17	1215	+7	160	0
86-3	"	86-4	17	1515	+7	160	0
86-4	"	87	17	1810	+7	170	9
87	"	87-1	18	0225	+7	215	9
87-1	"	87-2	18	0610	+7	170	0
87-3	"	87-4	18	1251	+7	124	0
87-4	"	87-5	18	1506	+7	174	0
87-5	"	88	18	1805	+7	175	16
88	"	88-1	19	0110	+7	110	6
88-1	"	88-2	19	0315	+7	165	6
88-2	"	88-3	19	0612	+7	168	2

APPENDIX 1

SCOT EXPEDITION (TO-58-1) PRIMARY PRODUCTION DATA

Depth m.	Light (L) Dark (D) Bottle	Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles	Trailing Bottle mg. C/m.^{3}/day	In Situ mg. C/m.^{3}/day
Station 6; April 27, 1958; 1145 l.s.t.; 21°13'N., 117°23'W.				
0	L	0.0332	0.216	
0	D	0.0515	-	
12	L	0.0532	-	
26	L	0.0445	-	
39	L	0.0530	-	
66	L	0.0392	-	
106	L	0.0632	-	
106	D	0.0152	-	
Station 8; April 28, 1958; 1130 l.s.t.; 18°41'N., 114°53'W.				
0	L	0.117	0.484	
0	L	-	0.658	
12	L	0.065	-	
26	L	0.070	-	
39	L	0.060	-	
66	L	0.050	-	
106	L	0.166	-	
106	D	0.0066	-	
Station 13; April 29, 1958; 1130 l.s.t.; 18°08'N., 114°32'W.				
0	L	0.0405	0.356	
0	L	-	0.604	
12	L	0.050	-	
20	L	0.0395	-	
31	L	0.0630	-	
52	L	0.0250	-	
34	L	0.0395	-	
129	L	0.0024	-	
Station 15; April 30, 1958; 1115 l.s.t.; 15°28'N., 112°23'W.				
0	L	0.0192	0.296	
0	L	0.0144	0.234	
12	L	0.0358	-	
20	L	0.0192	-	
31	L	0.0598	-	
52	L	0.0072	-	
84	L	0.0262	-	
129	L	-	-	
Station 17; May 1, 1958; 1130 l.s.t.; 13°03'N., 110°44'W.				
0	L	0.0405	0.912	
0	L	0.0332	1.38	
0	D	0.0332	1.10	
25	L	0.0478	-	
25	L	0.114	-	
50	L	0.0332	-	
75	L	0.055	-	
100	L	0.043	-	
-	D	0.0332	-	

Appendix 1.--Continued

SCOT PRIMARY PRODUCTION DATA (con.)

Depth m.	Light (L) Dark (D) Bottle	Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles	Trailing Bottle mg. C/m.^{3}/day	In Situ mg. C/m.^{3}/day
Station 23; May 3, 1958; 0515 l.s.t.; 10°14'N., 109°13'W.				
0	L	0.0902		0.826
0	D	0.325		0.658
0	D	0.151		-
25	L	0.147		0.976
25	L	0.0632		0.890
50	L	0.122		0.848, 0.826
75	L	0.072		0.594, 0.296
100	L	0.0812		0.296, 0.552
150	L	0.0858		0.084, 0.128
Water column (0-100 m.):				78 mg. C/m.^{2}/day
Station 30; May 5, 1958; 1120 l.s.t.; 10°14'N., 103°53'W.				
0	D	0.0382	0.084	
0	L	0.0262	0.402	
0	L	0.0358	0.932	
20	L	1.098	-	
40	L	-	-	
60	L	0.069	-	
100	L	0.0167	-	
140	L	0.0144	-	
Station 32; May 6, 1958; 1120 l.s.t.; 10°07'N., 100°40'W.				
0	-	0.028	-	
0	-	0.0258	1.93	
0	D	-	0.402	
15	-	0.0258	-	
25	-	0.061	-	
40	-	0.0375	-	
60	-	0.056	-	
90	-	0.061	-	
Station 34; May 8, 1958; 1115 l.s.t.; 9°44'N., 97°14'W.				
0	L	0.0332		
0	L	-		
25	L	0.100		
25	D	0.0119		
50	L	-		
75	L	0.086		
100	L	0.043		
150	L	0.0262		
Station 37; May 9, 1958; 1125 l.s.t.; 5°10'N., 95°53'W.				
0	L	0.215	2.97	
0	L	0.344	1.61	
0	D	0.164	-	
12	L	0.286	-	
20	L	0.272	-	
40	L	0.327	-	
80	L	0.234	-	
120	L	0.220	-	

Appendix 1.--Continued

SCOT PRIMARY PRODUCTION (con.)

Depth m.	Light (L) Dark (D) Bottle	Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles	Trailing Bottle mg. C/m.^{3}/day	In Situ mg. C/m.^{3}/day
Station 42; May 10, 1958; 1120 l.s.t.; 6°35'N., 95°57'W.				
0	L	0.0478		
0	L	0.0478		
0	D	0.0072		
Station 49; May 13, 1958; 1130 l.s.t.; 9°48'N., 89°14'W.				
0	L	1.733		17.044
0	D	0.0144		21.116
4	L	0.535		3.392, 3.732
8	L	0.683		3.032, 4.324
10	L	0.704		11.939
20	L	-		4.112
40	L	0.232		0.552
80	L	0.031		0.296, 0.254
Water column (0-100 m., interpolated):				238 mg. C/m.^{2}/day
Station 50; May 14, 1958; 1135 l.s.t.; 7°42'N., 88°08'W.				
0	L	0.110	0.208	
15	L	0.093	-	
30	L	0.146	-	
50	L	0.174	-	
90	L	0.0502	-	
140	L	0.0262	-	
Station 56; May 15, 1958; 0430 l.s.t.; 5°31'N., 86°43'W.				
0	L	0.659		1.886
0	D	0.067		-
3	L	0.108		-
5	L	-		0.954
15	L	0.112		0.976, 1.314
30	L	0.148		2.734
50	L	0.100		1.230
80	L	0.0622		0.764
120	L	0.074		0.296
Water column (0-100 m.):				134 mg. C/m.^{2}/day
Station 58; May 17, 1958; 1140 l.s.t.; 5°34'N., 83°26'W.				
0	L	0.456	4.14	
0	D	0.0655	5.58	
10	L	0.117	-	
25	L	0.140	-	
50	L	0.103	-	
90	L	0.0675	-	
140	L	0.0725	-	
140	D	0.0325	-	

Appendix 1.--Continued

SCOT PRIMARY PRODUCTION DATA (con.)

Depth m.	Light (L) Dark (D) Bottle	Lab. Incubator mg. C/m.^{3}/hr. at 1000 ft.-candles	Trailing Bottle mg. C/m.^{3}/day	In Situ mg. C/m.^{3}/day
Station 62; May 19, 1958; 0530 l.s.t.; 5°28'N., 77°46'W.				
0	L	3.218		39.28
0	L	2.859		44.520
5	L	0.824		9.434
10	L	0.686		4.580, 4.918
25	L	0.144		1.356
50	L	0.144		0.678
100	L	0.120		0.254
150	L	0.097		0.318
150	D	0.0508		-
150	L	2.894		-
Water column (0-100 m.):				290 mg. C/m.^{2}/day
Station 72; May 25, 1958; 1120 l.s.t.; 9°30'N., 85°52'W.				
0	L	0.0595	1.95	
0	D	0.172	1.61	
0	L	0.112	-	
5	L	0.260	-	
15	L	0.098	-	
25	L	0.0787	-	
50	L	0.0692	-	
100	L	0.00945	-	
100	D	0.0072	-	
Station 74; May 26, 1958; 1235 l.s.t.; 11°27'N., 88°44.5'W.				
0	L	-	2.04	
0	D	0.097	-	
0	L	0.102	0.78	
5	L	0.180	-	
15	L	0.090	-	
25	L	0.0855	-	
50	L	0.0207	-	
100	L	0.0231	-	
100	D	0.0322	-	
Station 76; May 26, 1958; 1135 l.s.t.; 13°16'N., 91°23.5'W.				
0	L	0.568	6.23	
0	L	0.685	6.23	
0	D	0.200	-	
5	L	2.963	-	
15	L	2.865	-	
25	L	0.666	-	
50	L	0.215	-	
100	L	0.0452	-	
100	D	0.0332	-	

SCOT PRIMARY PRODUCTION DATA (con.)

Depth m.	Light (L) Dark (D) Bottle	Lab. Incubator mg. C/m.^{3}/hr. at 1000 ft.-candles	Trailing Bottle mg. C/m.^{3}/day	In Situ mg. C/m.^{3}/day
Station 79; May 28, 1958; 1133 l.s.t.; 14°37.5'N., 93°52'W.				
0	D	0.0502	-	
0	L	0.0332	0.76	
0	L	0.0358	1.14	
5	L	0.031	-	
10	L	0.031	-	
25	L	0.0358	-	
50	L	0.258	-	
100	L	0.0119	-	
100	D	0.0072	-	
Station 83; May 29, 1958; 1142 l.s.t.; 15°20'N., 94°55'W.				
0	D	0.0165	-	
0	L	0.106	0.76	
0	L	0.186	1.12	
5	L	0.276	-	
15	L	0.200	-	
25	L	0.156	-	
50	L	0.118	-	
100	L	0.040	-	
100	D	0.00245	-	
Station 86; May 30, 1958; 1155 l.s.t.; 14°13.5'N., 95°51'W.				
0	D	0.0094	-	
0	L	0.0622	0.38	
0	L	0.055	0.30	
5	L	0.0405	-	
10	L	0.067	-	
25	L	0.055	-	
50	L	0.00248	-	
100	L	0.0285	-	
150	L	0.0072	-	
150	D	0.0072	-	
Station 88; May 31, 1958; 0445 l.s.t.; 15°11'N., 96°55'W.				
0	D	0.00282		-
0	L	0.0612		0.658
0	L	0.0712		0.552
5	L	0.0285		0.0446
10	L	0.0498		0.402, 1.060
25	L	0.0482		0.318
50	L	-		0.234
80	L	-		0.148
140	L	-		0.064, 0.064
140	D	0.0043		-

Water column (0-100 m.): 30 mg. C/m.^{2}/day

Appendix 1.--Continued

SCOT PRIMARY PRODUCTION DATA (con.)

Depth m.	Light (L) Dark (D) Bottle	Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles	Trailing Bottle mg. C/m.^{3}/day	In Situ mg. C/m.^{3}/day
Station 95; June 2, 1958; 1125 l.s.t.; 15°36'N., 98°43'W.				
0	L	0.0402	1.06	
0	L	0.0552	-	
0	D	0.0171	-	
5	L	0.0785	-	
10	L	0.0648	-	
25	L	0.044	-	
50	L	0.105	-	
100	L	0.0285	-	
100	D	0.00755	-	
Station 100; June 6, 1958; 1125 l.s.t.; 16°04'N., 100°44'W.				
0	D	0.0047		
0	L	0.043		
0	L	0.038		
5	L	0.050		
10	L	0.12		
25	L	0.18		
50	L	0.19		
100	D	0.0072		
100	L	0.048		
Station 104; June 7, 1958; 1155 l.s.t.; 17°03'N., 101°26'W.				
0	D	0.0285		
0	L	0.204		
0	L	0.200		
5	L	0.532		
10	L	0.131		
25	L	0.190		
50	L	0.421		
100	L	0.0285		
100	D	0.0191		
Station 109; June 8, 1958; 1145 l.s.t.; 17°56'N., 102°48'W.				
0	D	0.0208	0.296	
0	L	1.383	11.1	
0	L	1.494	-	
5	L	0.589	-	
10	L	0.698	-	
25	L	0.346	-	
50	L	0.116	-	
100	L	0.0232	-	
100	D	0.0162	-	

SCOT PRIMARY PRODUCTION DATA (con.)

Depth m.	Light (L) Dark (D) Bottle	Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles	Trailing Bottle mg. C/m.^{3}/day	In Situ mg. C/m.^{3}/day
Station 122; June 12, 1958; 1147 l. s. t.; 17°51'N., 105°08.5'W.				
0	D	0.0143	0.148	
0	L	0.156	1.53	
0	L	0.142	-	
5	L	0.090	-	
10	L	0.033	-	
25	L	0.144	-	
50	L	0.443	-	
100	L	0.019	-	
100	D	0.00938	-	
Station 127; June 13, 1958; 1140 l. s. t.; 19°01'N., 105°34.5'W.				
0	D	0.0119	0.148	
0	L	0.112	1.59	
0	L	0.0835	-	
5	L	0.0405	-	
10	L	0.055	-	
25	L	0.146	-	
50	L	0.0598	-	
100	L	0.0119	-	
100	D	0.00472		
Station 133; June 14, 1958; 1145 l. s. t.; 19°37'N., 107°37'W.				
0	D	0.0119	0.148	
0	L	0.196	3.10	
0	L	0.215	-	
5	L	0.098	-	
10	L	0.232	-	
25	L	0.222	-	
50	L	0.186	-	
100	L	0.0358	-	
100	D	0.00248	-	
Station 137; June 15, 1958; time, missing; 20°37'N., 106°20'W.				
0	D	0.0072	-	
0	L	0.303	5.13	
0	L	0.360	-	
5	L	0.0955	-	
10	L	0.186	-	
25	L	0.217	-	
50	L	0.176	-	
100	L	0.0167	-	
100	D	0.0072	-	

Appendix 1.--Continued

SCOT PRIMARY PRODUCTION DATA (con.)

Depth m.	Light (L) Dark (D) Bottle	Lab. Incubator mg. C/m.^{3}/hr. at 1,000 ft.-candles	Trailing Bottle mg. C/m.^{3}/day	In Situ mg. C/m.^{3}/day
Station 143; June 16, 1958; 1140 l.s.t.; 22°18'N., 108°32'W.				
0	D	0.00945	-	
0	L	0.244	0.488	
0	L	0.258	-	
5	L	0.0502	-	
10	L	0.103	-	
25	L	0.298	-	
50	L	0.344	-	
100	L	0.00945	-	
100	D	0.00945	-	
Station 145; June 17, 1958; 1135 l.s.t.; 23°52'N., 111°30'W.				
0	D	0.0144	-	
0	L	0.697	9.79	
0	L	0.864	-	
5	L	0.638	-	
10	L	0.845	-	
25	L	1.549	-	
50	L	0.105	-	
100	L	0.0214	-	
100	D	0.00945	-	
Station 147; June 18, 1958; 1140 l.s.t.; 26°38'N., 114°10'W.				
0	D	0.062		
0	L	8.692		
0	L	8.950		
5	L	7.413		
10	L	6.830		
25	L	0.907		
50	L	0.081		
100	L	0.251		

APPENDIX 2

SCOT EXPEDITION (TO-58-1) TOTAL PHOSPHORUS DATA

Station No.	Depth (m.)	μg. at./l.	μg. at./l.
4	0	0.58	
	9	0.64	
	28	lost	
	56	0.45	
	69	0.70	
	87	0.56	
23	0	0.58	-
	9	1.96	0.65
	25	0.53	-
	50	0.14	0.14
	75	0.74	-
	100	1.45	-
	150	2.63	-
49	0	0.84	
	4	0.92	
	8	0.88	
	10	1.07	
	20	2.23	
	40	2.16	
	80	2.18	
56	0	0.66	
	5	0.57	
	15	0.49	
	30	0.56	
	50	0.76	
	80	1.58	
	120	1.98	
62	0	lost	
	5	0.68	
	10	0.62	
	25	0.60	
	50	1.64	
	100	1.81	
	150	2.10	
88	0	0.70	
	5	0.71	
	10	0.57	
	25	0.68	
	50	0.63	
	80	0.57	
	140	3.69	

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